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Original Articles.

TUBERCULOSIS OF THE MYOCARDIUM.*

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PHILADELPHIA.

Previous to 1826 the existence of cardiac tuberculosis was denied. Tuberculosis of muscle was known to be rare and the heart, with its unceasing contractions, was considered immune. Again, the theory of the natural antagonism between cardiac disease and tuberculosis was almost universally accepted.

Laennec,[1] in 1826, in a "Treatise on Auscultation," affirmed the existence of cardiac tuberculosis, assigning to the heart the thirteenth rank among organs affected. He gave no instances. To Townsend[2] of Dublin belongs the honor of reporting, in 1832, the first case of myocardial tuberculosis. Others followed at infrequent intervals until in 1865 Haberling[3] was able to collect 12 cases, some, however, being of the pericardium only. Sänger,[4] in 1878, gathered and classified 22 cases, including 3 of his own and omitting several doubtful ones. This was thorough work and paved the way for all subsequent study of the subject.

In 1892 he was followed by Pollak,[5] and in 1895 Valentin[6] published his monograph—a critical summary of 36 reported cases. More or less extended articles by Mendez,[7] Labbi,[8] Barie,[9] Sangalli,[10] Kaufmann,[11] and others followed, to be summed up in an elaborate and valuable thesis by Fuchs[12] in 1898. This author collected 53 cases, including 2 of his own. The subsequent literature embraces articles by Eisenmeyer, Moser,[13] Crawford and other writers.

THE AUTHOR'S CASE.

Moser's personal observation with 5 cases he gathered from the literature, which are not included in Fuchs' list—3 being reported after his article was written—bring the total to 59. In a careful search of all available sources I have been able to add 12 cases exclusive of one of my own, making a total of 72. (See table.) My own case may be briefly reported:

A. T., aged 22 years, female, occupation clerk. The family history was good except for a slight tuberculous taint. The personal history includes the usual childhood diseases and a light attack of pleurisy at 17 years of age. One week prior to my first visit, March 20, 1888, the patient developed marked recurring chilly sensations lasting an entire day. These were accompanied by stitch-like pains in the left mammary and left axillary regions, by jerky respiratory movements and dyspnea. The temperature rose to 102 F. subsequently and then continued to range from this grade to 100.2. The physical signs were at first merely defective expansion and a friction-rub indicating plastic pleurisy, followed later by those of the serofibrinous variety. The apex beat of the heart was displaced and lost behind the sternum. The pleural sac was about two-thirds filled with exudate, which was freely movable on changing the patient's posture. There was nothing unusual presented by the case and the dyspnea was only moderately well marked, until the seventh day, when of a sudden the heart's action became distinctly weak and rapid, but there was no arrhythmia. At this time dyspnea was also more pronounced, and slight lividity of the mucous surfaces and finger tips was noticeable. These symptoms, however, passed away in the course of a few hours as the result of free stimulation. It was proposed to aspirate on the following day, but to my great amazement a member of the family called on me the next morning informing me that the patient had just died without the slightest warning and with startling suddenness. From all that I could gather, death probably occurred in syncope.

The autopsy was made twelve hours after death. Body well nourished, medium height. A flat percussion note over the left side from fourth rib to base of chest. On opening thorax nearly two liters of serofibrinous fluid, with only a moderate amount of fibrin, was found in left pleural sac; on the right side pleura adherent near to the base, otherwise apparently normal. Neither cultural nor inoculation tests were made of the exudate. No macroscopic changes were presented by the left pleural membranes and no bands of adhesion between the layers. The lower portion of the upper and the entire lower lobe were dark and atelectatic; near the lower border of the upper lobe and close to the pulmonary pleura there was a small caseous nodule, probably the primary focus. A similar small tuberculous area was situated in the upper lobe of the right lung, otherwise the lungs showed nothing abnormal.

The heart occupied a position within though near to the mid-sternal line; it had not been rotated on its own axis. The heart weighed 240 grams, hence was not hypertrophied. There was fibrous pericarditis present at the base of the heart and immediately beneath this area a single large caseous tubercle in the wall of the right auricle projecting slightly into its cavity and involving the entire thickness of it. The endocardium showed nothing pathologic on macroscopic examination. On account of the presence of the circumscribed pericarditis it was evident that the myocardial involvement was secondary and the result of extension by contiguity. The bronchial glands also were free from tubercular change. Briefly, the histologic peculiarities were those characterizing the tuberculous processes elsewhere: embryonal cells and giant cells with the presence on the interior of the latter of a few tubercle bacilli and caseous areas. An indefinite fibrous capsule envelopes the growth. Muscle fibers in the vicinity of the growth showed atrophy. The affected pericardium and the left auricle and ventricle were not examined microscopically. This is regrettable in the light of the recent microscopic studies of plastic pericarditis (vide infra).

Most of the important contributions to the subject of

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tuberculosis of the myocardium come from France and Germany, and much of the information is contained in monographs and dissertations, difficult, and in some places impossible to obtain. Hence, I believe that a brief, fairly comprehensive review of this interesting subject will be of some help and value.

PRIMARY AND SECONDARY FORMS.

Theoretically, tuberculosis of the myocardium may be primary or secondary. Practically, the existence of the primary form has yet to be satisfactorily demonstrated. Knopf and Demme[14] have claimed that their cases were of primary origin in the heart muscle, but their contention has not been generally accepted. In the former's case the patient died of acute miliary tuberculosis and there was nothing in the autopsy to show that the heart lesion was the primary one.

Demme's case showed at autopsy three small tubercles in the wall of the left ventricle and one in that of the right ventricle. No lesions were noted in other organs. Commenting on this case, Labbe observes that "the lack of histological examination, the insufficient search for tuberculosis in other organs and the well-known difficulty in discovering the mode of entrance of the bacillus of Koch, cast a doubt on the primary cardiac localization." All subsequent writers on the subject unite in declaring that the existence of primary tuberculosis of the myocardium remains to be proven.

A lesion of the heart wall, tubercular in nature, must therefore be regarded as practically always secondary to a focus in some other tissue. Later on this relationship will be considered in greater detail. A lesion with a total literature of 72 cases is far from a common one—far less so than pericardial tuberculosis. According to Valentin's table in 3,203 autopsied cases by different authors, myocardial tuberculosis was found in seven, a percentage of 0.21, or 2.1 per 1,000. Fuchs states that Kolb, searching Rokitansky's autopsy records for twenty years, 1840-1860, found no cases. Sangalli in 796 tubercular subjects during about 35 years reports two cases. In 285 similar autopsies by Letulle, Fuchs* found only one instance (reported by Pinn).

In marked contrast is the statement of Weigert[15] to the effect that in his experience the majority of victims of acute general miliary tuberculosis showed small discrete tubercles in different portions of the heart. Kaufmann, in reporting his case, states that he has often seen instances of the lesion, but until the present case had not considered the nodule of sufficient size to report. The actual fact lies between these extremes of view, probably nearer the opinion of Valentin. It is a noticeable fact that many more cases have been reported in late years than formerly; thus, from 1832 to 1890, nearly sixty years, 31 instances are recorded, while in the eleven years since the latter date, 41 cases are reported.

Formerly many nodules in the heart muscle were considered gummata, while in reality tubercular. For example, Virchow believed that most, if not all, of the so-called tubercles of the heart were of syphilitic nature. With more modern methods this confusion seldom occurs, and, of course, the presence on section of the tubercle bacilli renders the diagnosis absolute.

AGE, SEX AND PREVIOUS DISEASE.

This condition is relatively more frequent in youth. Fuchs, adding his statistics to those of Valentin, finds that out of 41 cases in which data are given nearly one-half are under 13 years.

Ages 0 to 15, 15 cases; 15 to 45, 16 cases; 45 to 60, 3 cases; 60 to 65, 2 cases; 71, 1 case; 72, 1 case.

If we consider in addition the 18 cases now recorded and not included in Fuchs' table, in 14 of which the age is given, we find:

Ages 0 to 15, 21 cases; 15 to 45, 24 cases; 45 to 60, 5 cases; 60 to 65, 3 cases; 71, 1 case; 72, 1 case.

These figures somewhat advance the average age, but still leave almost 40 per cent. of those affected under 15 years, while a little over 40 per cent. are between 15 and 45.

The relation between the question of age and that of causation will appear later, and it is not unimportant. In regard to sex there appears little difference. The question of trauma relative to the origin of this disease has received little attention and appears to need only scant mention. Valentin believed it might have some influence. Stoïcesco and Babès,[16] reporting their own case of a policeman who had probably been struck on the chest more or less often by reason of his occupation, lay considerable stress on the subject. Trauma may possibly play a rôle in the development of pericardial tuberculosis It may thus indirectly affect the heart itself, as myocardial tuberculosis may result from extension of similar involvement of the pericardium. A more direct influence may well be doubted, and, as Fuchs remarks, can not be affirmed on the basis of a single case.

The influence of pre-existing cardiac disease on the development of tuberculosis in the heart muscle has been little studied in the past. Sänger believed cardiac sclerosis to be a predisposing condition, but probably mistook an effect for a cause. Fibrous disease of the heart and arteries is usually a condition of later life than the period in which we have seen myocardial tuberculosis to be most common. The increase of connective tissue found more or less associated with this lesion is probably to a greater extent due to the effect of a toxin from the tubercle bacilli. Support is given this view by the analogous process seen in the heart as a result of the infectious fevers, intoxications, etc. It must not be forgotten also that fibrous tissue formation may indicate a healing or healed tubercular process in the heart as elsewhere.

THE SITES OF THE LESIONS.

While any part of the heart wall may be affected, certain sites are more common than others, varying with the character of the lesion and the mode of transmission. Lancereaux[17] and Valentin believed that the ventricles were more commonly involved and the latter found no instance recorded of involvement of auricles alone. In this he is supported by Labbe. Nathan-Larrier[18] and Fontoynont[19] both reported cases showing no ventricular involvement, but more extended study revealed their mistake.

In recent literature several observers report no growths in the ventricles with a nodule in the auricle. As in these cases no careful microscopic study is given of the ventricular wall, we must still assume the approximate correctness of Valentin's position. Certain it is, however, that oftener by far the largest part of the mass is found in the auricle, the growth in the ventricle being insignificant in comparison, e. g., Labbe, Fontoynont, Kaufmann, Eisenmeyer, my own case (Case 1), and many others.

While Valentin did not believe one side of the heart

* Following Fuchs, the case of Barie and two of Sangalli are included in the first series, as, though reported later, they were observed in 1850, 1873 and 1878, respectively.

to be affected more often than the other, Labbe took a different view. In this he is supported by the observations of Nathan-Larrier, Kaufmann, Fontoynont, as well as by the records of later cases, which I have investigated. We may safely say that the right auricle is affected more often than the left, while in regard to the ventricles the difference is less marked and is somewhat in favor of that of the left side. The influence exerted by the type of the lesion on the side affected is well shown in the summary by Heineman.

1. Acute general miliary tubercles:
   (*a*). Conus arteriosus of right side.
   (*b*). Great papillary.
   (*c*). Less often endocardium of ventricles.
2. Small nodular form, not general.
   Ventricles.
3. Large tubercles:
   (*a*). Auricles.
   (*b*). Junction of auricles and ventricles.
   (*c*). Ventricles often near septum.

Generally speaking, the small nodules are found usually in the ventricles and the large tubercles in the auricles, chiefly the right. The shape is only less variable than the size of the lesion, and both depend on the type and age of the growths. They range from the size of a pinhead in the miliary variety to that of a pigeon's egg (Fontoynont) or a hen's egg (Pollak) as seen in the large tubercles. Nathan-Larrier gives the dimensions of a caseous mass in his case as 8 cm. by 6 cm. by 5 cm.

The number of nodules is equally variable. A single tubercle may be present, even of very small size, or there may be many, large, small, or both. Usually there are several, two to five being perhaps a fair average. The greatest number recorded is 18 in a case of Fontoynont.

THE THREE VARIETIES.

The varieties of tuberculosis of the myocardium are three—large tubercles (or large and small nodular form), miliary form and the diffuse variety. I shall consider them in the order of their relative frequency.

1. *Large Tubercles.*—These may be single or multiple, pea to egg size. They may project beneath the endocardium or the pericardium or may be completely buried in the cardiac muscle, only discovered on section. In by far the largest number of reported cases they consist of firm, whitish masses, often with a softened, caseous center. Among the more recent ones are those of Pueschman, v. Genersich, Hoisholt,[21] Thiry, Eisenmeyer, Dunham, Wells and Hlava, not to mention many others in the literature.

2. *Miliary Variety.*—Here we find scattered small grayish, semi-transparent masses, often projecting as minute elevations under the endocardium. The latter is seldom affected. This variety is most common in the ventricles and shows the usual structure of the miliary tubercle elsewhere. It may be easily overlooked when situated in the depth of the heart wall. While less frequently seen than the large nodular form, it is far more common than the third variety.

3. *Diffuse Form or Tubercular Infiltration.*—There are a few instances recorded. It consists in a more or less general, diffuse tubercular infiltration of the cardiac muscle, generally that of a ventricle. Bret,[22] in 1893, reported the first case, followed in 1896 by the carefully studied cases of Labbe and Sangalli. The process is usually seen in connection with tuberculosis of the pericardium. The heart is enlarged, its walls thickened, firm and resistant to the knife. Microscopic examination shows near the pericardium separation of the muscle fibers by connective tissue of various degrees of firmness or by structureless, cheesy, poorly-staining material. In the middle of the myocardium is a layer of tubercular material in different stages, showing embryonal and giant cells and caseous masses. Still deeper, tubercular nodules are mixed in with areas of nearly normal muscle. In Labbe's case there was more tubercular than sound tissue in the part examined. Bacilli are present, many in Labbe's, few in Sangalli's case.

In this variety the cardiac muscle is more extensively altered than in the preceding ones. We find fragmentation, pigmentation and vacuolation of the fibers with atrophy and separation. In other places there is formation of intermuscular connective tissue and actual destruction of the original elements. In the nodular variety there is little alteration save atrophy of the muscle fiber, more or less limited to the immediate neighborhood of the tubercle, in Labbe's opinion, due to pressure. The actual loss of muscle substance here depends on the number of nodules.

A FOURTH VARIETY QUESTIONABLE.

A fourth variety mentioned by Brehmer[23] is admitted by some observers, but not generally accepted. It consists in a diffuse sclerosis of the heart muscle, a true tuberculous myocarditis, with excessive formation of fibrous tissue. Giant cells were found, and it is possible that the tubercular toxin can cause such a lesion without the immediate presence of the bacillus in the tissue. Still, a claim based on a single case in which the tubercle bacillus could not be found in the lesion can not be considered proven, and we should, for the present adhere to the usual threefold classification.

RARITY OF ULCERATION.

An interesting and important fact in connection with our subject is the rarity of ulceration. In fact, its occurrence was long denied by most competent students who rejected Murchison's instance reported in 1865. That ulceration does take place at times has, however, been more recently well established. Nathan-Larrier found erosion of the endocardium in the right auricle in his case, and believed it an example of secondary disease of the heart, with a subsequent infection of other organs by ulceration of the cardiac focus into the general circulation. He is supported by Letulle and Fuchs, both of whom examined his specimens. Mendez brings forward apparently good proof of the condition in his case.

Pueschman's specimen showed a caseous tubercle extending through the right auricular wall and capped with a thrombus containing enormous numbers of tubercle bacilli. The patient of v. Genersich had an erosion of the endocardium over a tubercle in the right auricle. There was a recent extensive miliary tuberculosis of the lungs, liver, spleen, etc. Borsch[24] reports a similar instance with the presence of Weil's symptom-complex as a result of an infection of the liver.

It is difficult to say why these tubercles often attain such a size, become so softened and yet so rarely discharge into the blood stream. If enough time is given for such growth, why not enough to reach the stage of ulceration? The explanation probably lies in another direction. From their situation in the substance of the heart muscle they are little exposed to secondary infection and resulting breaking down, such as occurs so often in organs more readily attacked by micro-organisms, for instance, the lungs.

The minute anatomy of the tubercular growth in the heart muscles reveals nothing unusual. The microscope

shows embryonal adjacent cells with areas of caseous material and more or less fibrous tissue. The tubercle bacillus is found practically always when sought with appropriate methods. It is present in small or large numbers, most often within the great cells.

DIAGNOSIS.

Differential pathologic diagnosis is not difficult with modern methods. Tumors show their individual peculiarities of structure and lack the presence of the bacillus. Actinomycosis, while presenting much resemblance to the tubercle in gross appearance, is rarely met with in this situation, and on section would show its characteristic structure. The presence of the ray fungus and the absence of the tubercle bacillus would establish the diagnosis.

Gummata simulate the large tubercle closely and, as mentioned, were formerly supposed to be the real lesion in the so-called tubercles of the myocardium. Virchow[25] held this view and laid stress on the presence of an envelope of fibrous tissue around the syphilitic growth. Fuchs has shown that such a fibrous capsule may rarely surround a tubercle. Under such circumstances, in the absence of tubercle bacilli, a diagnosis might be impossible without resort to animal inoculation.

COMPLICATIONS.

Quite a variety of morbid conditions have been observed as a result of the presence of tubercles in the heart muscle. Besides changes in the muscle fibers already described, hypertrophy and dilatation are frequent. Tuberculosis of the endocardium occurs, though rarely. In Townsend's case a large mass compressed the entrance of the pulmonary veins. Kaufmann notes narrowing of the orifice of the canal and pulmonary veins. Classen[26] reports narrowing of the superior vena cava to a mere slit. Frequently the cavity of the right auricle is almost obliterated by the size of the masses in its walls. Thrombi are seen occasionally on the heart wall, especially in the large tubercular form. Instances of this are seen in the reports of Pueschman, Moser and Wells.

The relation of myocardial tuberculosis to tuberculosis of other organs is an extensive and interesting one. As already stated, the lesion in the heart is always secondary to a focus in some other organ, at times found only after most thorough search. On the other hand, the growth in the cardiac muscle may in turn transmit infection to other portions of the body by rupture into the general circulation. Instances of this have already been cited.

Occupying one or the other of these relationships, practically all the organs of the body have been found affected. Lungs, pleura, mediastinal and mesenteric glands, liver, spleen, kidneys, intestines, joints, vertebræ and genito-urinary tract, all of these have been reported.

SOURCE OF INFECTION.

Accepting the fact that the heart is never primarily affected, how does the tubercle bacillus reach the cardiac muscle? Where is most often the primary localization and what the method of transmission to the heart? These questions have been a fertile field for discussion, and while there is now something of a crystallization of opinion on the subject, much room for investigation remains.

The current belief is expressed by Labbe when he says that the source of infection is found most often in the thorax, and that transmission to the heart generally occurs by way of the lymphatic system. In a large proportion of cases tubercular disease of the lungs and bronchial glands is present. We have seen how relatively frequent cardiac tuberculosis is in early life, and we know how general enlarged and tubercular bronchial glands are among children. Hence the theory that the most frequent source of infection is in the tubercular lymph glands of the bronchial and mediastinal groups. In a careful review of the 71 reported cases, I have found mention of enlarged and calcified or caseous bronchial glands in 29, or 40.8 per cent. In 40, or 56.3 per cent., this condition was not mentioned, though in one the cervical glands were affected and in 6 others general tuberculosis was present. In 2 cases only the glands were noted as free from disease, though in one of these also the cervical glands were involved. Considering only the cases in which the glandular condition is noted, 29 out of 31, or 93.5 per cent., are the seat of disease. These figures give much support to Labbe's theory.

From the bronchial glands the process extends to the mediastinal groups and thence to the heart, directly or quite commonly by way of the pericardium. According to Morris[27] the lymphatic vessels of the heart are in three sets, received by as many sets of glands. These glands, the anterior, superior and posterior mediastinal receive tributaries from the front, right side and left side of the heart respectively, in addition to the lymphatics of the pericardium. The anterior group sends its different vessels to the superior group and this in turn to the posterior. The latter communicates with the bronchial glands.

Gerrish[28] follows the same classification and states that the superior mediastinal nodes communicate with the bronchial and deep cervical groups and the posterior mediastinal freely with the bronchial. Thus there is an anatomic ground for the lymphatic theory of transmission. There is needed besides a reversal of the normal direction of the lymph stream. That this is possible has been shown by v. Recklinghausen.[29]

Infection through the agency of the pericardium is very frequent, the avenue of transmission being the same as for the heart directly. In the 72 cases I find adherent pericardium, total or partial, noted in 31 (including my own case), or 43.7 per cent.; also in 31, or 43.7 per cent., no mention, and no pericarditis in 10, or 14 per cent. Of the 31 cases of adherent pericardium, the process was evidently tubercular in 24, as shown by the presence in the adhesions of tubercles and caseous material. In view of the recent studies of Wells[30] and Reisman[31] showing that microscopic examination of what is apparently a mere fibrous pericarditis may reveal a tuberculosis, we may safely assume an even larger proportion to be cases of this nature. From the pericardium the process extends along the lymphatics directly to the heart muscle, most often that of the right auricle. In the 32 cases of this type the right auricle was the chief seat in 21. This accords well with greater age and intensity of the pericardial process at the base of the heart and the immediate relation of the right auricle in this situation.

In tuberculosis of the myocardium, as Tiessier and other writers have shown, associated lesions of the endocardium are rare. My own studies, however, have led me to conclude tentatively that "almost all of the rare instances of true tuberculosis of the endocardium are associated with other forms of cardiac tuberculosis, especially pericarditic."[32]

Infection by the blood has been urged by many ob-

servers as the mode of transmission in many if not all cases. I think we have seen good reasons for not accepting such an extreme view. There is, however, little doubt that such blood transmission of bacilli does occur in quite a proportion of cases. In cases in which an acute general tuberculosis exists and the heart lesion is of the miliary variety, this method is most probable. But where we find enormous caseous masses in the heart wall, can this theory hold? If the bacilli were circulating in the blood, derived from, let us say, a pulmonary focus, there would certainly be produced an acute generalized tuberculosis and the heart lesion would never have sufficient time to attain the stage of the large caseous tubercle. The situation of a nodule deep in the substance of the cardiac wall argues no more in favor of the blood than the lymphatic theory, although the contrary has been held. Direct extension from surrounding parts is seen at times, but is a less important and frequent mode than has been generally held.

It seems, then, probable that the mode of infection is most frequently from the bronchial glands by way of the lymphatic system, either directly to the heart or very often with the intervention of the pericardium. A certain but smaller proportion of cases are examples of infection by the blood, while a few are instances of extension by continuity.

TABLE OF THIRTEEN RECENT CASES COLLECTED BY THE AUTHOR.

Reporter.	Type of Lesion.	Probable Primary Focus.	Symptoms.	Remarks.
Pueschman[33]	Large tubercle	Lungs and bronchial glands		Adherent pericardium, secondary dissemination by rupture into right auricle
V. Genersich[34]	" "	Meninges or bronchial glands		Adherent pericardium, tubercles, erosion of endocardium of right auricle and secondary dissemination.
Thiry[35]	Small tubercle	Lungs and bronchial glands		
Eisenmeyer[36]	*a* Large tubercle		Heart dulness enlarged to right edge of sternum; 1st sound dull at all valves; 2d, pulmonic reduplicated; feeble mitral systolic and barely perceptible mitral diastolic murmurs.	Tubercular pericarditis; sudden collapse and death.
Eisenmeyer[37]	*b* " "		Heart sounds clear; attacks of collapse; quite well in interval; dyspnea and edema at end.	Tubercular pericarditis.
V. Bamberger[38]		?		" "
Dunham[39]	Small tubercle	?		
Wells[40]	*a* Large tubercle	Bronchial glands		" "
Wells[41]	*b* " "	" "		Adherent pericardium.
Crawford[42]	Not classified	?		
Hlava[43]	Large tubercle			
Hartog[44]	" "			
Anders	" "	Pericardium (lungs)?	Pleurisy with effusion; heart sounds clear; one attack of collapse; next day sudden death	Pericardium adherent at base; tuberculous areas in lungs.

THE SYMPTOMS.

Little is known of the clinical side of our subject. Among symptoms observed have been palpitation, feeble heart sounds, pericardial distress, diffuse pulsation, tumultuous and rapid heart action, fetal and gallop rhythm, rarely murmurs, sudden and recurring syncope, dyspnea, cyanosis, unconsciousness, general edema, sudden death. In all this list there is nothing specific, no single symptom or combination of symptoms that is not seen in functional and organic disease of the heart other than tubercular. Often the patient dies without a symptom that would attract special attention to the heart. In other cases lesions of the kidneys, liver, lungs, etc., easily suffice to explain the circulatory symptoms present and a heart lesion is never suspected. Fontoynont's patient, with a left-sided pleural effusion, died in an attack of asphyxia supposedly due to the pleuritic condition. Autopsy revealed extensive tubercles in the myocardium.

The history of my case, reported above, is identical. The tuberculous lesion of the myocardium, however, whilst marked, was apparently confined to the right auricle. It is well known that sudden death may occur in sero-fibrous pleurisy, especially in cases in which the heart is greatly dislocated. It has been ascribed to a variety of causes, such as embolism of the pulmonary artery, asphyxia, edema of the opposite lung and myocardial degeneration. The existence of tuberculosis of the myocardium, however, must be reckoned with as a factor in the causation of speedy death in pleural effusion. In Brosch's remarkable case, Weil's symptom-complex was present, due apparently, as shown, at autopsy, to miliary tuberculosis of the liver secondary to the myocardial condition. Other instances might be cited.

The diagnosis has never been suggested, still less made, during life. With autopsy findings before us it is easy to explain the symptoms usually noted. For part, the actual size, extent and pressure effects of the nodular growths are responsible; for the remainder we find a cause in the myocardial degeneration seen to a slight degree in the nodular type and to a greater extent in the diffuse infiltration.

Eisenmeyer believes that the diagnosis may occasionally be made by the presence in a victim of general tuberculosis of attacks of sudden, severe collapse, quickly passing and the detection of weak endocardial murmurs varying in phase and intensity. The short duration of the syncopal attacks and the comparative well-being in the interval, he explains on the ground that the heart muscle is not diffusely altered as in other myocardial lesions and the sound muscle present is able to quickly recover itself. It will be recollected that in my case symptoms of collapse lasting only a few hours occurred on the day preceding sudden death. That this is true except in the diffuse tubercular infiltration we have seen from the investigations of Mendez, Labbe and Sangalli. Along these lines, therefore, seems to lie our greatest hope for success in the future.

I would particularly emphasize the investigation, in a subject of general tuberculosis, of symptoms in any way referable to the heart, no matter if easily explained by coexisting disease of other organs. If the patient has a tubercular pericarditis, another extremely strong indication is present. Unfortunately, even if detected, the condition must ultimately be fatal. Treatment there is none so far as the cardiac tuberculosis *per se* is concerned. If, however, associated tuberculous processes are in evidence, the usual measures, both hygienic and medicinal, must be brought into prompt requisition.

CONCLUSIONS SUGGESTED.

1. Tuberculosis of the myocardium is more common than has been supposed.

2. At present writing not more than three pathologic varieties are justifiable.

3. It is practically always secondary to a lesion in some other situation, most commonly in the bronchial or mediastinal glands.

4. Transmission to the heart occurs most frequently by the lymph stream, less often by the blood current, and more rarely still as the result of extension by continuity.

5. Myocardial tuberculosis in a considerable proportion of cases is secondary to pericardial tuberculosis and the latter to disease of the bronchial glands.

6. The symptomatology is extremely variable and indefinite.

7. Diagnosis is excessively difficult, but is probably possible with great care and under favorable circumstances. In addition to the suspicious features that may be present the existence of generalized tuberculosis and pericardial tuberculosis, one or both, are essential to a diagnosis.

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Applicant's Right to Examine Papers.—The city solicitor of Washington, D. C., has, in an opinion given to the Board of Medical Supervisors, decided that an unsuccessful applicant for license to practice medicine has the right to inspect his papers afterward. The decision was the result of the refusal of the board to permit such inspection by a rejected candidate. —*New Orleans Med. and Surg. Jour.*

A CASE OF SCURVY, WITH UNUSUAL POVERTY OF THE BLOOD.*

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NARRATION OF CASE.

History.—W. G., white, single, age 32, bricklayer, was in the south of Cuba from August to December, helping in the erection of a mill. His condition when he went was good, as he had spent a vacation at the shore. He was a moderate user of alcoholic beverages, and never had any venereal disease. He was housed well enough, but the water was poor and the food distasteful in almost every respect. The beef that was killed in the morning was eaten for dinner and sometimes for breakfast. Vegetables were scarce, fruit apparently scarcer; and, as everything was cooked by a native cook in Spanish style, the patient could bring himself to eat hardly anything. There were forty men in the party and all but one were sick, usually with malaria or typhoid, although authoritative diagnoses are lacking, as the nearest physician was sixty miles away. The patient in question began to fail gradually, but at no time did he have fever, or was he sick enough to suspect either typhoid or malaria. He gradually lost strength, until finally, in desperation, he traveled the sixty miles to see the Spanish doctor, who told him that he had grave anemia and that his only hope lay in returning at once to the United States, which he did. He reached home very much exhausted, and slept the greater part of five days and nights, awakening only for water and a very little food. His relief was so great at getting home, and his fear of being pronounced tuberculous so genuine, that he steadily refused to see a physician until a few days before his death.

Examination.—On seeing the patient, the most noticeable thing was his breathlessness. It was bad when he lay quiet, but the slightest exertion increased it to a marked degree. The skin was dry and pale where it had been covered with clothing; elsewhere the decided sunburn made any detection of tints impossible. The scleræ were distinctly pearly, the emaciation was moderate, and there was no edema at all. The physical weakness was extreme, the mental apathy less so. There were a few petechiæ on the legs and thighs, but they developed less than forty-eight hours before death. There were no nodes or large subcutaneous ecchymoses anywhere. He said that he had never had a pain nor an ache during his sickness. The pulse was rapid—120 to 130 and above—and at times irregular. The temperature varied from 98 to 100, but it was never found above the latter. Anorexia was complete. The tongue was dirty, and the breath not very fetid. The teeth were gobd, and the gums not spongy, but of normal hardness and dark in hue. The saliva was not increased. There was an intermittent oozing of dark blood, finally forming a clot at the junction of teeth and gingival mucous membrane. Rarely would more than two teeth ooze at the same time, and the amount of blood was not large. This had probably been occurring intermittently for two weeks. There was a very slight epistaxis once or twice, but no hemoptysis, hematemesis, hematuria or melena after he came home, nor was there any previous history of these conditions. The bowels were obstinately constipated, and there was vomiting for a day, but this disappeared after the large amount of water he craved was reduced. There was a feeble expansile impulse over the precordia, but there was no friction nor thrill. On auscultation there were soft, low-pitched murmurs, heard best near the base, but also heard all over the precordia, and they showed no transmission. The lungs were normal, except for a few moist râles here and there, and the liver and spleen appeared normal. The urine was acid, had a specific gravity of 1016, contained no albumin and no sugar, and microscopically showed only a few uric-acid crystals.

Blood Examination.—This was made by my colleague, Dr. James R. Crawford, the instruments used being the Fleischl hemoglobinometer and the Thoma-Zeiss hemacytometer. The

* Read at the Fifty-third Annual Meeting of the American Medical Association, in the Section on Practice of Medicine, and approved for publication by the Executive Committee: Drs. Frank Billings, George Dock and J. M. Anders.

drop that followed the puncture was watery in appearance. The count showed 370,000 red blood corpuscles, 17 per cent. of hemoglobin and 4600 white blood corpuscles. Dr. Crawford fully realized the difficulty of determining with accuracy so low a count of erythrocytes and so small a percentage of hemoglobin, but repeated trials seemed to warrant the figures as given. Unfortunately, no cover-glass slips were made at this time, and the sudden death of the patient precluded the possibility of obtaining them later. The man persisted in leaving his bed contrary to orders, and died suddenly of syncope.

The postmortem examination was made by Dr. R. M. Pearce and the following is his report:

External Appearance.—Body of a well-developed, poorly nourished male about 30 years of age. Extreme pallor of skin; small amount of subcutaneous fat. Muscles dark red.

Abdominal Cavity.—A few petechial hemorrhages in mesenteric fat. Intestines contracted, smooth and glistening on their outer surface. No fluid; no adhesions. Appendix normal. Mesenteric lymph nodes hardly visible.

Pericardium.—Contains an excess of cloudy straw-colored fluid with a slightly bloody tinge. In this fluid there are several small jelly-like masses of coagulated serum and fibrin slightly reddish in color. Beneath the visceral layer of pericardium are innumerable closely set, often confluent hemorrhages. These hemorrhages are most numerous over the surface of the left ventricle and left auricular appendage, though some are found in all parts of the heart. The serosa is slightly cloudy. On section the hemorrhages are found to extend for a slight distance in places into the myocardium. All large vessels leading to and from the heart opened *in situ*. No evidence of thrombosis or embolism.

Heart.—Valves and cavities normal. Myocardium, on section, distinctly yellowish-white in color, soft, friable and easily torn. From the endocardial surface irregular mottling and streaking can be seen. In places beneath the pericardium are seen the minute hemorrhages described above. In the meshes of the left auricular appendage are very small grayish-white accumulations suggesting ante-mortem coagulation. Aorta normal.

Lungs.—Distended; edematous throughout. On pressure large amounts of watery, frothy fluid can be expressed. There is no evidence of pneumonic solidification. The bronchi contain a white mucoid fluid. Pleural cavity: no fluid, no adhesions.

Spleen.—Small; capsule smooth. On section, no increase of fluid; markings normal.

Esophagus, Stomach and Intestines.—Examined throughout entire extent but show no lesions of any character. The lymphatic structures are not hyperplastic. There is no injection. A large amount of mucus is found in the upper portion of ileum and jejunum. The pancreas was normal.

Liver.—Surface smooth. On section, very extensive fatty degeneration giving the liver a diffuse yellowish appearance, revealed here and there by the injected centers of the liver lobules. Consistence is much diminished. Gall-bladder and ducts normal.

Kidneys.—Capsule peels readily leaving a smooth surface. On section, kidney is almost bloodless; pale yellowish in color. Relations between cortex and pyramids normal. The normal markings of cortex can not be made out; consistence diminished.

Adrenals.—Cortical portions normal in appearance. The medullary portion stands out very prominently; is firm and of the consistence and appearance of lard. The relations between cortex and medullary portion normal. Pelvis of kidney, ureter and testicles normal.

Prostate and Testicles.—Normal.

Femur.—Examination of bone marrow shows normal fatty appearance of adult marrow.

Examination of head and mouth not allowed.

NOTE.—The anatomic conditions taken into consideration with the clinical symptoms appear to confirm the diagnosis of scurvy, the anemic and fatty degeneration resulting from frequent hemorrhages.

Anatomic Diagnosis.—Profound anemia, fatty degeneration of heart, liver and kidneys, petechial hemorrhages of pericardium and mesenteric fat, hydropericardium and edema of lungs.

CONDITION OF THE BLOOD IN SCURVY.

The three points of especial interest in the case are the condition of the blood, the gums and the pericarditis. In reviewing the various studies of the blood made in scurvy, it must be borne in mind that some cases were studied early and some late; some were mild, some grave; some had large hemorrhages, some small or none; and some had little, others widespread serous inflammations and effusions—any one of which conditions might modify the blood count. However, disturbing factors aside, enough is known to warrant the broad conclusion that in scurvy there is no blood change characteristic of the disease. Except in mild and early cases, there is a moderate diminution of the red blood corpuscles. Suckling[1] reports a case with the appearance of extreme anemia, in which the number of erythrocytes was 1,290,000, and the leucocytes normal; White,[2] a case with 2,000,000. In Henry's[3] series of cases the lowest count was 1,980,000; the average, 3,000,000 to 4,000,000, and in one case over 5,000,000. The average counts made by Uskow,[4] Leven,[5] Variot,[6] Wegschneider,[7] Duguet and Duplais,[8] and Lamb,[9] were about the same as Henry's. The lowest count found, 557,875 erythrocytes, was made by Bouchut[10] in a case of scurvy, four weeks after the onset of a serious epistaxis. Fifteen weeks later the same case showed 3,625,000.

The amount of hemoglobin is usually reduced. A case of Henry's, with 2,775,000 erythrocytes, showed 30 per cent of hemoglobin; another, with 3,310,000, gave 35 per cent.; and a case with over 5,000,000 gave 65 per cent. White's case, with 2,000,000 erythrocytes, showed 20 per cent. of hemoglobin. The hemoglobin is reduced more quickly and more decidedly than the erythrocytes; and as recovery takes place, the latter increases more rapidly than the former. This disproportion between the red blood corpuscles and the hemoglobin is sometimes sufficiently marked to give the blood the chlorotic characteristic. In severe cases, and especially in those with large hemorrhages, Wjernsckki[11] and others have found poikilocytes, macrocytes and microcytes. Penzoldt[12] has observed granular corpuscles from one-quarter to three-quarters the size of normal corpuscles, which he believes to be the early stages of new erythrocytes. Others have also noted this tendency to regeneration in cases not too grave.

The leucocytes, in pure cases of scurvy and those free from complications, are usually somewhat reduced. However, any complication may disturb the ratio. Two of Henry's cases each showed a leucocytosis of 20,000; and Stengel[13] says that in cases of scurvy with severe hemorrhages, leucocytoses of from 15,000 to 40,000 may be found. Some observers have found the eosinophiles increased.

In a patient who had not had large hemorrhages, a count of 370,000 erythrocytes per cubic millimeter, with an increased individual corpuscular richness in hemoglobin (17 per cent. to 370,000) suggests pernicious anemia, even where no microscopic study was possible. The statement of Wjernsckki that the graver the cases of scurvy, the more macrocytes, microcytes and poikilocytes, and the fewer erythrocytes and the less hemoglobin there were, is also suggestive. However, I have not been able to find that any case of scurvy has terminated in pernicious anemia. The idea that there may be some relation between the two diseases has already been suggested more than once. Liston and Reilly[14]

report finding ova of *Anchylostomum duodenale*, and state that grave cases were cured after the use of thymol; therefore, scurvy may be considered a variety of pernicious anemia, due to *Anchylostomum duodenale*. Lamb and others have examined the stools in their scurvy patients without finding any ova.

The gum symptoms in scurvy are important, and often they alone almost determine the diagnosis. However, their absence is not infrequent; and if they are present, the severity of the gingivitis may have no relation to the severity of the other symptoms. In the young, with sound, clean teeth, and in the old, where teeth are absent, the gum symptoms may be entirely wanting. When present the gingivitis appears earliest and is most marked about carious and broken teeth. In McGrew's[15] series of 42 cases, there were 11 that had no gum symptoms. In Berthensen's[16] 225 patients, only 85 had gingivitis; and of these, but 17 had hemorrhage from the gums. Herrmann[17] found healthy gums 31 times in 141 patients; Kirschenberger,[18] 26 times in 116 patients; Tholozan,[19] in 79 autopsies, found changes in the gums but 7 times; Sampson and Himmelstern[20] report that early in the Moscow epidemic of 1840 the gums were pale and thin; later in the epidemic, the gingivitis became more pronounced.

Scorbutic pericarditis, according to the various authorities,[21] is not so frequent as pleurisy, but more frequent than scorbutic peritonitis. It is a very grave complication, being always associated with degeneration of the heart muscle. It may come early or late; it may be insidious or frank. It produces very early collapse symptoms, the pericardium constantly transuding new quantities of blood. The symptoms and signs of pericardial effusion vary as in ordinary pericarditis.

PATHOGENESIS OF SCURVY.

The ravages of scurvy to-day are nothing as compared with earlier times, before Lind[22] (1779) and Blane[23] (1785) introduced the use of lime juice on board ships, and when armies in active service had a haphazard commissariat and paid little attention to hygiene. The disease now may be sporadic, endemic and occasionally epidemic. It may occur in any climate, as India, Arabia and Russia. It occurs frequently in northern Russia and occasionally becomes epidemic. Hoffmann[24] suggests that it may not be so infrequent elsewhere as supposed, for mild cases are often overlooked. The spring is the most common time; but no season is free, no race is exempt, and age and sex have little influence—though the aged, because of their impaired vitality, are more prone to contract it. Overfatigue, mental depression, nostalgia, insufficient light and air—as in overcrowded ships, almshouses, hospitals and jails—and bad water are all predisposing causes. Scurvy may complicate or follow certain diseases, as dysentery, typhoid fever, tuberculosis, pneumonia, malaria and rheumatism. Dohrn[25] reports several cases in which the mother transmitted the disease to the unborn fetus.

The formal theories regarding the cause of scurvy are:

1. Nutritional; that it is due to a diet wanting in fresh vegetables.
2. Toxic; that it is due to eating tainted food.
3. That it is an infectious disease.

THE NUTRITION CAUSE THEORY.

There is reason for believing that improper diet alone may cause scurvy. Henry has reported cases in which the diet was, respectively, ham, fresh meat, farinaceous food, bread and chocolate; McGrew, cases in which the diet was bread, strong coffee and meat; Osler,[26] a dyspeptic who lived for months on bread and tea; Amburger,[27] a woman who lived on chocolate and a man who ate only meat. The large number of cases of infantile scurvy, due to the feeding of condensed milk and patented foods, is interesting in this connection. As Hoffmann says, such unfit food may act as a predisposing cause, by creating gastric and intestinal disturbance. Bachstrom,[28] in 1734, was the first to claim that a lack of vegetables was the cause of scurvy. Ever since that time a prolonged diet wanting in vegetables and fruits, and their contained acids and salts, has been recognized as the most important factor in the etiology of the disease. Garrod[29] claims that this lack is the potassium salts; Ralfe,[30] that the disease is due to diminished alkalinity of the blood, because of the absence from the food of the vegetable salts—malates, citrates and lactates—the alkalinity of the blood depending on the carbonate, which is derived directly from these salts. The same results are produced in scurvy as when the normal alkalinity of the blood is reduced by injecting acids or by feeding them in excess to animals—dissolution of the corpuscles, ecchymoses, blood stains on the mucous membranes and fatty degeneration.

In this connection it is interesting to note that Albertoni[31] finds the total acidity reduced, and sometimes absent, in the gastric juice of scorbutics; he also finds the acidity of all the body fluids diminished. Wright[32] claims that scurvy is an acid intoxication, with diminished alkalinity of the blood. He reports 7 cases in which the alkalinity of the blood was much reduced. Lactate of soda, added to the blood, increased its acidity at once. He supposes that the condition is due to the ingestion of an excess of mineral acids over the bases. Lamb reports 11 cases, in some of which the blood alkalinity was reduced; but lactate of soda had no curative effect.

THE TOXIC CAUSE THEORY.

The disease is due to some organic poisonous substance in the food, which is the product of decomposition. The experiments of Jackson and Harley[33] and of Vaughn[34] seem to prove that tainted meat may produce scurvy. Monkeys fed on rice and fresh meat did not get the disease; fed on rice and tainted meat, or on rice, tainted meat and a banana or apple, they did get it. Neale[35] and twenty-five other men lived upon fresh frozen meat and blood, in the Arctic regions, and did not contract scurvy. A similar expedition of twenty-two men refused to eat fresh frozen meat and blood, but lived on tinned vegetables and lime juice, and almost all had scurvy. Jürgensen[36] reports a case of land scurvy in which the sole diet was vegetables.

THE INFECTIOUS CAUSE THEORY.

Scurvy is considered an infectious disease, although no definite micro-organism is yet acknowledged. Berthensen believes in the infectious theory, and that there is a marked predisposition among the insufficiently nourished. He argues that the disease usually begins in a circumscribed focus; as, a ship, house, prison or town. In epidemics this primary focus can usually be found, if carefully sought out. In hospital epidemics many patients, some robust, enter the hospital with no signs of scurvy and acquire it there. Many cases so acquired are among those having wounds. That the disease occurs endemically and epidemically, and shows a sudden increase in certain months and years, is best explained by the infectious theory. Again, the disease is not confined to man, but has been found in horses and dogs

(Dieckerhoff[37]), and in the gorilla, goat and sheep (Le Roy de Mericourt[38]); and it has been experimentally produced in rabbits by injecting the blood of scurvy patients (Murri and Petroni[39]). Norriski[40] goes even further and suggests that the disease may be contagious, basing his assertion upon the fact that certain people, with the best surroundings and food, though neglecting even the elementary precautions of disinfection after direct contact with scurvy patients, developed the disease.

Acting upon the supposition that the disease was infectious, various investigators have sought for a definite micro-organism. Borntraeger[41] isolated a coccus from the minute hemorrhages in the spleen of persons dead of the disease. Home[42] believes that the scurvy is an infection of the mouth with various micro-organisms from decayed food. This infection is most likely to occur in times of hardship, when cleanliness is least within reach. He suggests that lime juice and fresh vegetables, or their acids, act as antiseptics.

Babes[43] thinks that scurvy is a hemorrhagic infection. The virus enters the mucous membrane of the gums, and is absorbed from there into the surrounding blood vessels. He discovered fine bacilli in excised pieces of gums. Rabbits, when injected with bouillon containing pieces of the gums, had hemorrhages, and died after six to eight days with symptoms like scurvy. The blood and urine of his scurvy patients, when injected, did not produce the disease. He secured pure cultures of this bacillus, and differentiated it from the streptococci, also present in the gums. He believes this bacillus to be the cause of the gingivitis, and that it exists normally in the mucous membrane of the mouth, but can act only under conditions which diminish the resisting power of the body.

Testi and Beri[44] describe a micro-organism found about the teeth which they believe causes scurvy. It is a diplococcus, stains in all the anilin dyes, resists Gram's stain, renders gelatin fluid, and causes a sawdust-like deposit. Experimentally, lesions similar to those in scurvy were produced. They consider the disease a toxemia.

CONCLUSIONS.

1. There is no condition of the blood characteristic of scurvy.
2. Gingivitis is not a constant symptom of scurvy.
3. In certain scurvy cases there is a condition of the blood similar to that existing in pernicious anemia, though any definite connection between the two diseases is not demonstrated.
4. The most important element in the causation of scurvy appears to be a diet lacking in vegetables or their ingredients. Tainted food may produce it, and an exclusive diet of perfectly fresh meat and blood may prevent it.
5. The infectious theory is gaining a strong foothold among the authorities, although no definite micro-organism is acknowledged.

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DISCUSSION.

DR. ABRAHAM JACOBI, New York—In adults I have seen but few cases of scurvy; in infants I have seen a great many, but I am afraid I have nothing new to say. Regarding the condition of the gums, it is still considered a debatable ground. Some still believe that, in infants with scurvy, the gums must always be affected. On the other hand, it has been stated that, when there are no teeth, in children two, three, four or five months old, there will be no bleeding and no other scorbutic symptoms about the gums. Both of these statements are incorrect, to judge by a good many such cases I have observed. I can recall many seen in early infancy, no teeth being present, in which there were the symptoms on the gums of scurvy as found in older children. On the other hand, there has been an absence of sponginess and bleeding of the gums in babies who had a number of teeth. The condition of the gums is not at all conclusive so far as the diagnosis of scurvy is concerned. So far as the etiology is concerned in infants, I think everybody knows what I can say about it. I have found that over-sterilizing the milk will give rise to scurvy; I have seen such cases before 1894, when I referred to that subject in my address on scurvy before the International Medical Congress of Rome, and have seen many more cases since; though it would be a mistake to consider the exclusive use of sterilized milk in the feeding of babies the only cause of scurvy.

SOME PHYSIOLOGIC FACTORS INVOLVED IN THE ORIGIN OF SCURVY (SCORBUTUS).

ROY RAVONE ROGERS.

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Scarcely any disease has afforded opportunity for such abundant speculation and investigation as scurvy.

Till within the last twenty years its ravages among maritime and military ranks were appalling, and it has been largely due to the work of Lind, Garrod, Buzzard, Chalvet, and particularly that of Ralfe, that our knowledge of its etiology, prevention and treatment has reached a stage where it can be expressed in definite terms.

VARIOUS OPINIONS ON ETIOLOGY.

The causes in which the origin of scurvy have been sought have been indeed, in many cases, in no way related, each theory has had its grains of truth, but has failed to explain all and it is our purpose to correlate

these various observations and refer them to simple terms.

Lheridon-Cremorne[1] sought its cause in nostalgia, Gueit[2] in mental depression, Murray[3] in despondency and hypochondria, Fabre[4] in a vasomotor disturbance induced by some micro-organic activity, Aldridge in a general want of mineral material in the food and diet of the system as well as in the system itself, Villemin, Stengel,[5] Babes,[6] Boruträger,[7] Berthensen,[8] in an infection, others in fear, anxiety, salt food, fatigue and exhaustion, indolent habits, lack of exercise, bad water, etc.

In 1734 Bachstrom[9] formulated the idea that its cause lay in a deficiency of fresh vegetable material in the diet, and this idea was the basis for the work of Garrod, Buzzard and Ralfe.

Garrod[10] compared the chemical composition of diets whose use gave rise to scurvy with those whose use was either preventive or curative, and he concluded that, "in all scorbutic diets potash exists in much smaller quantities than in those which are capable of maintaining health, and that all substances proved to act as anti-scorbutics contain a large amount of potash." But we should expect that the converse of this last statement would be true if Garrod's theory were the whole truth. However, the converse statement, that all substances which contain potash in large quantities act as anti-scorbutics, was shown not to be true by Murray,[11] Bryson[12] and Grant.[13]

Then Buzzard advanced the idea of Garrod one step further by assuming it not to be the lack of potash alone, but a lack of potash in combination with organic acids, such as citric, tartaric, malic, etc., either as acid or neutral salts. He says: "All anti-scorbutic juices contain salts of citric, tartaric or malic acids and we have no evidence of any substances which contain these in considerable quantity and are yet deficient in the power of preventing scurvy. The mode by which they act is still involved in obscurity." Chalvet[15] explained this last point of difficulty in Buzzard's theory by showing how the ingestion of salts of the organic acids with the alkalies gives rise to the formation of carbonates in the blood. But, he says, the potash in meats, dry and leguminous vegetables is not absorbed because it exists in some more stable form, as, for example, the chlorid, sulphate or phosphate.

THE INVESTIGATIONS OF RALFE.

But it was Ralfe's excellent work[16] that showed what rôle the transformation of alkali salts of organic acids into alkaline carbonates plays in the disease. He showed that the withdrawal of fresh vegetables from the diet caused the composition of the urine to approach (with exceptions which he explained) that of scorbutic urine qualitatively and quantitatively; he further showed that administration of anti-scorbutic diet to scurvy-stricken patients caused the composition of the urine to approach the normal. Ralfe then concludes: (a) That the primary change which occurs in scurvy is a chemical alteration in the quality of the blood; (b) that this chemical alteration, as far as can be judged by inferences drawn from analysis of the urine of patients suffering from scurvy, and analysis of scorbutic and anti-scorbutic diets, points to a diminution of the alkalinity of the blood; (c) that this alkalinity of the blood is produced in the first instance (physiologically) by an increase of acid salts (chiefly urates) in the blood, and finally (pathologically) by the withdrawal of salts having an alkaline reaction (chiefly alkaline carbonates); (d) that this diminution in the alkalinity of the blood finally produces the same results in scurvy patients as happens in animals when attempts are made to reduce the alkalinity of the blood (either by injecting acid into the blood or feeding with acid salts), namely, dissolution of the blood corpuscles, ecchymoses and blood stains on the mucous surfaces and fatty degeneration of the muscles of the heart, the muscles generally and the secreting cells of the liver and kidney."

THE PATHOLOGY OF SCURVY.

This leads us to inquire what are the pathologic and anatomic changes produced in the system under the influence of scurvy. There is a general tendency toward ecchymosis formation, extravasation, mucous hemorrhage, edema of many tissues, especially subcutaneous, the lungs and lower extremities, and a more or less extensive fatty degeneration of the skeletal muscles and also of visceral organs, particularly the heart, liver and kidneys; there is also a diminution in the number of red blood corpuscles and the hemoglobin in them, also strong alterations in the composition of the urine as Ralfe[16] showed. The question now arises as to what are the factors involved in the production of these pathologic states—what are the conditions which give rise to them?

Death produced by long suffocation, by carbon monoxid poisoning, by sufficient diminution in the partial pressure of the oxygen in the air, by sufficient increase in the partial pressure of the carbon dioxid in the inhaled air, by dyspnea induced in any way and extended over a sufficiently long period of time—all these produce some or all of the effects which are characteristic of scurvy.

Munk and Leyden[17] and many observers since them[18] have shown that phosphorus poisoning may lead to a general fatty degeneration of the liver, lungs, heart, muscles, to visceral ecchymoses and bloody extravasations. Similar pathologic changes can be produced in various ways, notably by the prolonged use of poisons.[19]

Now inspection of all these various conditions forces one to the idea that they are all characterized by a lack of oxygen for the consumption of the tissues. Loeb[20] advanced the idea that edema is caused by lack of oxygen in the tissues. He says: "These facts can leave no doubt that the absorption of water by the muscles with its vessels ligatured is caused by chemical alterations in the muscles which are probably induced by a lack of oxygen." Loeb further says that these chemical alterations in the cells cause an increase in the osmotic pressure in the cell and thus water is absorbed from the blood or lymph. Loeb[21] also showed that lack of oxygen prevented cell division in *Ctenolabrus* egg and caused a disappearance of the cell walls, that is to say, brought growth to a standstill and led to a dissolution of already existing morphologic structures. He also observed that the heart of *Ctenolabrus* embryo under withdrawal of the oxygen supply came to a standstill before any appreciable diminution in the frequency of the heart beat.

The action of phosphorus as a poison, as mentioned above, is very pronounced and its pathologic effects may be considered as almost typical of the general effects of the lack of oxygen on higher organisms.

Thus it seems very probable that the ecchymoses, hemorrhages, extravasations, edema and fatty degenerations of scurvy are due to chemical changes produced by the lack of oxygen.

THE STATUS OF THE BLOOD.

The rôle which the blood plays in all these phenomena is very important; aside from its being ultimately the nutrient medium for the cells, it serves the double pur-

pose of (1) neutralizing the acid products formed in the tissues under normal and pathologic conditions, as well as (2) maintaining a medium surrounding the tissues sufficiently alkaline that the processes of growth and oxidation may go on normally.[22]

Walther,[23] Loeb,[24] and others have shown the deleterious effects of acids, i. e., hydrogen ions, upon growth, development and life duration. The conclusions of Ralfe[16] with regard to the rôle of blood alkalinity receive support from the work of Araki,[25] who found that the poisonous effects of carbon monoxid and some other substances which produce lack of oxygen in the tissues, are very markedly diminished by injections of alkali, and after such injections of alkali, lactic acid appeared in the urine as the alkali salt.

Although direct observations have not been obtainable with regard to the presence or absence of lactic acid in the urine and blood, and of glucose and albumin in the urine, it seems most probable that they will be found to exist in scurvy patients in quantities very much over the normal.

It is also to be expected that hypodermic injections of sodium carbonate, or disodium phosphate in either Ringer's solution or physiologic salt solution (or better in such strength of Ringer's solution as will make the resultant solution isosmotic with a normal Ringer's), would be found very serviceable in aggravated cases of scurvy.

When we consider that the effect of nostalgia, mental depression, fatigue, disease, poor food, etc., is a tendency toward a reduction in the "tonus" of the system, chiefly through alterations in the processes of nutrition, it becomes clearer that their relationships to scurvy as pathogenic agencies can only be secondary, although they may become serious as complicating factors.

SUMMARY.

1. The direct cause for the appearance or continuance of an attack of scurvy does not depend upon the activity of micro-organisms although the latter may establish conditions favorable to the onset of scurvy or aggravate a case already existing.

2. The direct cause for the appearance or continuance of an attack of scurvy lies in the establishment of the condition known as "lack of oxygen" in the tissues.

3. Those conditions which tend to prevent the formation of acid, i. e., of hydrogen ions (and possibly other products also) in the tissues and tend to increase the store of available alkalinity, i. e., hydroxyl ions, in the blood and lymph, are the conditions most antagonistic to the development of scurvy or its continuance, and those most favorable to its cure.

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TRAUMATIC RUPTURE OF THE ABDOMINAL VISCERA WITHOUT EXTERNAL SIGNS OF INJURY.*

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CHICAGO.

(Concluded from p. 1036.)

PROGNOSIS.

Until 1890, when laparotomy first was systematically employed as a means of treatment in this class of injuries, the mortality was a very high one. In 1887 Edler collected 96 cases (uncomplicated) of rupture of the liver, of which 21, or 21.8 per cent., recovered and 75, or 78 per cent., died. Of rupture of the spleen (uncomplicated) only 8 recovered spontaneously, or 15.8 per cent., and 44, or 84.6 per cent., died. Of ruptures of the kidney (uncomplicated) there were 55 cases, of which 36, or 65 per cent., recovered and 19, or 35 per cent., died. Since laparotomy was not performed in any case the recoveries must be regarded as spontaneous ones. In 1896 Petry collected 160 ruptures of the intestine, of which 149, or 93 per cent., died and 11, or 7 per cent., recovered. He also collected 23 perforations of the stomach due to subcutaneous injury, of which 13 died, or 59 per cent., and 40 per cent. recovered through formation of adhesions or abscess formation. Those cases of perforation of the intestine which recovered did so ten times through fecal abscess formation and once through adhesions. In 1878 Bartels collected 169 cases of extraperitoneal rupture of the bladder with 89 per cent. mortality. In 1896 Kuster found that of 222 cases of rupture of the kidney (uncomplicated) 30 per cent., or 67, died. Of these 30 died of hemorrhage alone.

From the above we have sufficient grounds to answer those who still believe in the expectant treatment, that left to themselves an average of over 80 per cent. of the cases of rupture of the spleen and liver will die and 93 per cent. of the cases of rupture of the intestine and 89 per cent. of those of the extraperitoneal and an even higher percentage of the intraperitoneal ruptures of the bladder (98 per cent.). The outlook in ruptures of the kidney left to themselves is perhaps a little better. Of the variety in which there is no communication with the peritoneal cavity 30 per cent. will die, and if the peritoneum is lacerated practically all will die. (In 14 cases of such rupture not operated upon all died, according to Kuster). Injuries of the pancreas and gall-bladder have a fair prognosis when left alone. Many of the former have collections of bile in the abdominal cavity which may not cause death. Of 34 cases, 22 died (Courvoisier). In the case of the pancreas about 50 per cent. die. When large blood vessels (portal vein, branches of celiac axis or renal vessels) are torn, death is the rule.

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HEALED RUPTURES OF SPLEEN OPERATED ON.

No.	Name of Operator and Journal.	Patient and Injury.	Symptoms.	Extent of Injury and Treatment.	Result.
1	Riegner. Berl. Klin. Woch., 1893, No. 8.	Fell from second story. Boy, 14 years.	Shock and symptoms of internal hemorrhage. Dulness in flanks and hypogastric region.	Laparotomy, 24 hours later. Showed spleen transversely severed, so that lower half lies free in peritoneal cavity. Upper half still attached to non-torn vessels. One and a half liters free blood. Splenectomy.	Recovery. Amputation of left thigh four weeks later, on account of gangrene of leg. Marked swelling of inguinal, axillary, cubital, cervical glands. One month after splenectomy.
2	Pitts and Ballance. Trans. Clin. Soc. (London), vol. xxix, 1896.	Struck by cricket ball on left side, five days before admission. After struck had stomach ache; then felt well for four days, and then suddenly severe. Boy, 10 years.	Collapse, very anemic, abdomen motionless, very tender on pressure, especially in left hypochondriac region. Dulness in both flanks, changing on right side.	Laparotomy (five days after accident). Splenectomy. Large rupture on phrenic surface, extending deeply into parenchyma, and involving vessels of hilum. A spleniculus was left.	Recovery. Enlargement of lymph glands during convalescence. Blood three months later: R., 5,040,000; W., 17,000; H., 75 per cent.
3	Pitts and Ballance. (See above.)	Run over by hansom cab. Woman, 45 years old.	Shock, extreme collapse and intense pain on left side, a few drops of blood in urine. Dulness in left flank, which did not move with change of position.	Laparotomy (a few hours after injury), on account of increasing internal hemorrhage. A deep rupture on gastric surface extending into hilum. Splenectomy. Clots removed.	Recovery. On eighteenth day she showed signs of severe anemia. This disappeared on feeding extract of spleen, bone marrow and arsenic. Had pains in abdomen, humerus, and over tibiæ during convalescence. Three months later glands slightly swollen. R., 4,660,000; W., 12,000; H., 74 per cent.
4	Pitts and Ballance. (See above.)	Eight hours before operation fell across an iron girder. Man, 36 years old.	Very pale, later splenic dulness, increased collapse. Dulness in both flanks, great pain in abdomen.	Laparotomy (eight hours after injury). Extensive tear on gastric and renal aspects into hilum. Splenectomy.	Recovery. Three weeks after operation, signs of severe anemia. Disappeared after same treatment as No. 3.
5	Pierson. N. Y. Med. Journal.	Ten years. Thrown from sleigh against a post, striking on left side.	Collapse, severe pains in left hypochondriac region, radiating to left shoulder. Tympanitic. Vomiting, and rapid pulse.	Laparotomy (20 hours after injury). Rupture extending through hilum. Tamponade of wound.	Slow recovery.
6	V. Beck. Münch. Med. Woch., 1897, p. 1319.	Nineteen years old, male. Run over.	Collapse and symptoms of internal hemorrhage. Diagnosed rupture of spleen.	Laparotomy. Tear on concave aspect close to hilum, extending through entire parenchyma; also several tears on convex aspect. Spleen 15x8x4 cm. Splenectomy.	Recovery. Marked anemia for ten weeks. No lymphatic enlargement.
7	Trendelenburg. Deut. Med. W., 1899, No. 40.	Seventeen years old, male. Struck on left side.	Rode home after injury. Half hour later pains in abdomen, vomiting, signs of internal hemorrhage. Dulness in flanks and hypogastric region.	Laparotomy, six hours after injury. Extensively lacerated spleen. Splenectomy.	Recovery. Slight transitory swelling of glands.
8	Krabbel. See Arch. Klin. Chir., vol. lx, p. 964.	Fell from ladder. Boy, 9 years old.	Severe shock and signs of internal hemorrhage, and pains in right side.	Laparotomy (same day). Rupture of spleen. Tamponade. A portion of spleen lay loose in abdominal cavity.	Recovery. Swelling of inguinal and cubital glands. H., 80 per cent. Four weeks after operation.
9	Savor. Centralblatt f. Gynaekologie, 1898, No. 48.	Kicked in left side of abdomen in sixth month of pregnancy. Thirty-one years old.	Signs of internal hemorrhage.	Laparotomy. Splenic rupture found. Splenectomy.	Recovery. No influence on mother and child.
10	Ballance. The Practitioner, 1898, p. 797.	Boy, in falling ten feet, struck abdomen on stone.	Collapse. Pain in abdomen, most marked on left side of abdomen. On following day was worse, showed signs of internal hemorrhage.	Laparotomy (?) Rupture of spleen. Splenectomy.	Recovery. Swollen cervical and axillary glands after operation.
11	Delbet. Gaz. des Hôpitaux, 1898.	Struck on abdomen. Walked long distance after injury. Boy, age not given.	Gradual onset of signs of internal hemorrhage, with pains in right side of abdomen. Dulness on left side.	Laparotomy. Rupture of spleen several centimeters long. Large intraperitoneal clot. Splenectomy.	Recovery.
12	George Heaton. Brit. Med. Jour., 1899, i.	Boy, 9 years old. (?)	Signs of internal hemorrhage.	Laparotomy. Two-thirds of spleen torn into small pieces. Splenectomy. Clot not removed.	Slow recovery. Very critical condition at first.
13	Perthes. Deut. Med. W., 1899, No. 40.	Run over.	Immediate unconsciousness. Pulse irregular, 72. Abdomen not rigid. After 24 hours sudden severe abdominal pains. Marked rigidity of abdominal walls; made diagnosis of perforation of intestine.	Laparotomy (24 hours after injury). Large clot. Rupture of spleen. Splenectomy. Tear in convex surface along entire length, 1 to 1½ cm. deep.	Recovery.
14	Bardenheuer. Deut. Med. Woch., 1897.	Man, fell 12 feet. Had fracture of sixth and seventh ribs (left), and hemothorax.	On eleventh day after injury suddenly grew worse. Fever and signs of peritoneal irritation.	Laparotomy. Evacuated large encapsulated clot, beginning to suppurate. In its middle lay spleen, enlarged to double its size, and ruptured. Splenectomy. Large tear on convex surface. Vessels at hilum torn across.	Recovery.
15	Vincent. Revue de Chirurgie, 1893.	Man, 36 years. Had a malarial splenic tumor. Fell from tree.	Signs of internal hemorrhage and pain in splenic region. Dulness on left side. Increasing peritonitic irritation symptoms and dyspnea.	Laparotomy, eleventh day after injury. Removed clot, but left spleen surrounded by clots.	Recovery in four months.
16	Mauclaire. Bull. Soc. Chir., Paris, July 2, 1901.	Male, kicked by horse in left hypochondrium.	No signs of internal hemorrhage until second 24 hours.	Laparotomy, 24 hours after injury. Spleen cut into several segments. Splenectomy.	Recovery.
17	Coville. Bull. Soc. Par., Dec. 10, 1901.	Female, 65 years. Fell from window.	Went about work until tenth day, when entered, with large fluctuating swelling over splenic region. Diagnosed hydronephrosis.	Lumbar incision, first made, negative. Laparotomy. Found circumscribed cavity filled with blood, and at bottom greatly enlarged and torn spleen. Splenectomy.	Recovery.
18	Lewerenz. Arch. Klin. Chir., Bd. 60	Male, 27. Run over by wagon.	Severe abdominal pain. Gradually increasing signs of internal hemorrhage. Pulse	Laparotomy, four hours after injury. Large amount of free blood in peritoneal cavity.	Recovery. Some psychical disturbances (hypochondria). Good

Jan. 25, 1902. [illegible] region by Schl[illegible]

around umbilicus, and in flanks. Rigidity of abdominal walls. Pulse, 80. Tympanites increasing.

on convex surface. Tamponed wound.

Laparotomy, eight hours after injury.

Recovery.

	Jan. 21, 1901.	Abdomen struck by horse.	around umbilicus, and in flanks. Rigidity of abdominal walls. Pulse, 80. Tympanites increasing.	on convex surface. Tamponed wound.	
20	J. Bell. Brit. Med. Jour., 1901, vol. i, p. 178.	Male. Struck on abdomen.	Well marked dulness in both flanks, and great pain in epigastrium.	Laparotomy, eight hours after injury. Splenectomy. Transverse complete rupture of spleen. Weighed one pound.	Recovery.
21	Krabbel. Deut. Med. Woch., 1899, No. 36.	Boy, 9½. Fell from ladder on abdomen.	Vomited twice. Pain in right side of abdomen and liver. Dulness in lower part of abdomen. Gradually increasing weakness and pallor.	Laparotomy, five hours after injury. Two pieces of spleen torn off. Removed remaining portion.	Recovery.
22	Madlener. Münch. Med. Woch., 1899, No. 43.	Female, 57. Fell on edge of pail, striking left side of abdomen.	Collapse and signs of internal hemorrhage. Dulness in left flank.	Laparotomy, seven hours after injury.	
23	Eichel. Münch. Med. Woch., 1901, No. 42.	Thrown from horse. Male, 23.	Marked shock and pallor. Abdomen very tender. Dulness in left flank. Symptoms of internal hemorrhage increasing.	Laparotomy, eight hours after injury. Spleen showed one longitudinal and two transverse tears. Splenectomy.	Recovery. Six weeks after operation, 4,200,000 reds. H., 80 per cent.
24	Cohn. Münch. Med. Woch., 1900, May 1.	Male, 17. Struck over left side of abdomen by mallet thrown at him.	Pain immediately over region struck, and fainted. Recovered after being taken home, and walked to physician on fourth day after injury. On account of increasing anemia and fainting spells, came to hospital, six days after injury. Very anemic, and dulness over left flank.	Laparotomy, eight days after injury. Large tear extending from hilum to convexity. Splenectomy. Spleen, 16½x8½x3½ (due to anemia).	Recovery.
25	Jordan. Münch. Med. Woch., 1901, No. 3.	Male, 23. Thrown from horse.	Severe pain, pallor; pulse, 66; vomiting; marked rigidity of abdominal muscles. Splenic dulness increased. Signs of internal hemorrhage, increasing under observation.	Laparotomy, eight hours after injury. Transverse tear of spleen, going through entire parenchyma. Splenectomy.	Recovery
26	Wilms. Münch. Med. Woch., No. 12, 1902, p. 503.	Female, 30. Fell from ladder on left side.	Severe pain and collapse. Dulness in left lumbar region.	Laparotomy, 4½ hours after injury. Spleen extensively torn, one tear passing through hilus. Splenectomy.	Recovery.
27	Hildebrandt (Thomen). Arch. Klin. Chir., vol. lxvi.	Boy, 15. Run over.	Collapse. Signs of internal hemorrhage. Abdomen not tense, but tender everywhere. Dulness in flanks.	Laparotomy, two hours after injury. Tear in spleen sutured.	Recovery.
28	Same as No. 27.	Fell on left side of abdomen.	Constantly increasing anemia. No tenderness or rigidity. Dulness on left side of abdomen.	Laparotomy, one hour after injury. Splenectomy.	Recovery.

CASES OF RUPTURE OF SPLEEN.—OPERATED ON, BUT FATAL.

No.	Name of Operator and Journal.	Patient and Injury.	Symptoms.	Extent of Injury and Treatment.	Result.
1	J. Croft. See Trapp. Deut. Z. für Chir., Bd. 44, No. 13.	Male, 25. Run over.	Shock and signs of internal hemorrhage.	Laparotomy 13 hours after injury. Fractures, eighth to eleventh ribs. Rupture of spleen. Splenectomy.	Death same day, due to shock.
2	A. O. MacKelar. (Same.)	Struck on abdomen. Man, 57.	Collapse, pain in splenic region. Signs of internal hemorrhage.	Laparotomy 30 hours after injury. Ruptured spleen. Free hematoma. Peritonitis. Fracture several ribs.	Death on third day. Lacerated kidney revealed at autopsy.
3	Page. Lancet, 1892, I.	Child.	Signs of internal hemorrhage.	Laparotomy 46 hours after injury. Ruptured spleen.	Death after temporary improvement.
4	Lane. (Same.)	Boy, 15. Struck by pole of wagon.	Signs of internal hemorrhage.	Laparotomy (immediately). Spleen extensively ruptured.	Death five hours after operation.
5	Trendelenburg. (Cf. Gottschalk, Inaug. Diss., Bonn, 1893.)	Struck by cow's horn in left side.	Signs of internal hemorrhage.	Laparotomy 29 hours after injury. Transverse rupture at hilum of greatly enlarged spleen (24x12x6 cm.).	Rapid death.
6	Lane. (See No. 4.)	Child, 4. Struck by pole of wagon.	Signs of internal hemorrhage.	Immediate laparotomy. Splenectomy. Extensively torn spleen.	Death five hours after operation.
7	Battle. Brit. Med. Journal, 1893.	Man, 40 years. Fell 15 feet; walked to hospital.	Tenth left rib broken. Signs of int. hemorrhage. Gradually increasing in intensity.	Laparotomy. Splenectomy. Spleen ruptured.	Death on sixth day, of peritonitis.
8	Strange and Ware. Brit. Med. Journal, 1897, I.	Male, 51 years. Had had malaria. Crushing injury.	Severe abdominal pains, especially in region of spleen. Dulness over latter increased. Collapse.	Laparotomy. (Very difficult.) Splenectomy. Rupture of *adherent* spleen on anterior edge.	Death on table.
9	Lanarchia. Münch. Med. Woch., 1897.	Boy, 15 years. Struck a blow with fist over left hypochondrium.	Signs of internal hemorrhage.	Laparotomy. Spleen (enlarged to double its size by malaria) has a horizontal tear. Suture.	Death one and a half hours after operation, of hemorrhage from second, not discovered, tear.
10	A. G. Gerster. Mt. Sinai Hosp. Reports, 1898.	Girl, 4 years. Run over.	Admitted 48 hours after injury, with abdomen distended. Evidences of fluid; fever, vomiting.	Laparotomy. Found peritonitis and free blood. Transverse rupture of spleen completely dividing organ in two halves. Tamponade.	Death ten hours after operation. Found hemorrhage in both pleural cavities at autopsy.
11	Eigenbrodt. (Deut. Med. Woch., No. 40, 1899.)	Male, 35 years. Fell upon girder from great height.	Signs of internal hemorrhage.	Laparotomy five hours after injury. Splenectomy of ruptured spleen.	Death in six hours, of extreme anemia.
12	Bardenhauer. Deut. Med. W., 1897. Vereinsbeil. Pflücker.	Male. Run over on right side of abdomen.	Signs of internal hemorrhage.	Laparotomy. Splenectomy.	Death in collapse.
13	Trendelenburg. Deut. Med. W., 1899, No. 40.	Male, 21 years. Run over by wagon. Heavy drinker.	Transitory coma, followed by severe abdominal pains, collapse, and signs of internal hemorrhage.	Laparotomy 20 hours after injury. Rupture of spleen. Splenectomy.	Severe delirium tremens on following day. Died on seventh day of peritonitis. Autopsy showed a rupture of left lobe of liver.

No.	Name of Operator and Journal.	Patient and Injury.	Symptoms.	Extent of Injury and Treatment.	Result.
14	Leydel.	Kicked by horse in splenic region. Male.	Signs of gradually increasing internal hemorrhage.	Laparotomy. Extensive tear of spleen and capsule stripped off.	Died on twelfth day of severe anemia.
15	Demoulin. Bull. Soc. Chir., Paris, 1901. July 2.	Male, 51 years. Horse kick in left hypochondriac region.	Very marked shock, from which gradual recovery. Suddenly, on fifth day, signs of internal hemorrhage, without cause.	Laparotomy fifth day after injury. Lower third of spleen completely separated. Capsule covered stump and checked hemorrhage temporarily. Splenectomy.	Death 57 hours after operation, of septic peritonitis.
16	Veron. Bull. Soc. Chir., Paris, July 2, 1901.	Male. Kicked by horse in left hypochondriac region.	Immediate shock and emesis. Signs of internal hemorrhage increasing. Dulness everywhere, except over stomach. Early rigidity of belly wall.	Laparotomy 22 hours after injury. Large intraperitoneal clot. Rupture along entire border, and one running toward hilum. Splenectomy.	Death tenth day after accident. Due to septic peritonitis.
17	Eisendrath. (Unpublished.)	Struck over left hypochondrium, with monkey-wrench. Male, 16 years.	Abdomen distended, especially in lower left half. Pulse 96, full. Dulness in both flanks; changes on turning. Signs of internal hemorrhage.	Laparotomy ten hours after injury. Large amount of intraperitoneal liquid and clotted blood. Spleen, on external surface, showed deep tear. Splenectomy. Also ligation of bleeding omental vessel.	Death two days after operation, of peritonitis.
18	J. Bell. Brit. Med. J., vol. i, p. 178, 1901.	Male, 27 years. Kicked in abdomen.	Gradually increasing signs of internal hemorrhage, and great pain.	Laparotomy 14 hours after injury. Tear beneath capsule, which had ruptured at hilum. Splenectomy. Blood clots removed.	Death caused by hemorrhage around medulla, and fracture of base.
19	Eichel. Münch. Med. Woch., Oct. 15, 1901.	Run over by ammunition wagon. Male, 20.	Pulse small, 120. Respiration, 30. Dulness in left flank. Blood in urine.	Laparotomy six hours after injury. Longitudinal tear over convexity, and one across hilum. Splenectomy.	Death 18 hours after injury. No peritonitis. Autopsy showed a small tear of kidney with but slight hemorrhage.
20	Cohn. Münch. Med. W., May 1, 1900.	Male, 23. Fell on abdomen, striking edge of chair.	Severe pain in abdomen. Vomiting. Free fluid (evidence of) in peritoneal cavity.	Laparotomy 10 hours after injury. Large amount of free intraperitoneal blood. Tears on gastric surface of spleen.	Death two days later. Autopsy showed marked anemic and edema of lungs.
21	Hildebrandt (Thomen). Arch. für Klin. Chir., Bd., 66.	Male, 45. Struck over abdomen by trunk of tree.	Collapse. Signs of internal hemorrhage. Dulness in left flank.	Laparotomy one and a half hours after injury. Ragged tear in spleen, cauterized and tamponed.	Died two days later of pneumonia.

LAPAROTOMY FOR RUPTURE OF LIVER WITH FATAL RESULTS.

No.	Author and Journal.	Nature of Injury.	Symptoms.	Operation.	Remarks.	Result.
1	Korte. Samml. Klin. Vortrage, No. 40.	Run over.	Emphysema of skin. Fracture of right fifth, sixth and seventh ribs. Tenderness over abdomen. Hematuria.	Laparotomy on third day. T-shaped tear of liver. Drainage.	Found particles of liver with bile between coils of intestine. At autopsy found also rupture of kidney.	Died day of operation.
2	Leith. Edinburgh Med. J., 1895.	Severe contusions of epigastrium.	Signs of internal hemorrhage.	Laparotomy. Almost complete separation of left lobe.	Two branches of portal vein torn.	Died.
3	MacCormac. Samml. Klin. Vortrage, No. 40.	Fell on back while drunk.	Severe pains in epigastrium, collapse, vomiting.	Laparotomy. Removed clots.	Found at autopsy a tear of under surface of right lobe, and also of large branch of portal vein.	Died.
4	Mason. Lancet, 1889.					
5	Page. Terrier et Auvray, Rev. de Chir., 1896.	Run over.	Slight contusion of abdominal wall. Tympanites. Pain. Signs of internal hemorrhage.	Laparotomy on third day after injury. Removed clots.	....	Died.
6	Page. (See above.)	Severe blow over liver.	Pain in abdomen. Signs of internal hemorrhage.	Laparotomy 30 hours after injury.	Could not find wound in liver on account of restlessness of patient.	Died.
7	Pech. Centralbl. Chir., No. 8, 1900.	Kicked by horse.	....	Laparotomy 30 hours after injury. Did not find liver injury.	Autopsy showed deep tear on convexity of liver and on kidney; also peritonitis.	Died.
8	Schlather. Beitrage Klin. Chir., v, 15.	Run over.	Vomiting. Pain over liver. Later tympany, tenderness, dulness. Hematuria.	Laparotomy three and one-half hours after injury. Tear in liver and duodenum. Both sutured.	Blood and contents of duodenum in peritoneal cavity.	Died 20 hours after operation.
9	Trendelenburg. (Wilms). Deut. Med. Woch., No. 35, 1901.	Run over.	Severe collapse. Rigidity of walls. Increasing anemia.	Laparotomy two days after injury. Suture.	Autopsy showed second tear on posterior surface; also rupture of kidney.	Died seventh day.
10	Same.	Run over.	Severe collapse. Pain in left side. Dulness in flanks, especially left.	Laparotomy 20 hours after splenectomy for ruptured spleen.	Autopsy showed tear of left lobes.	Died seventh day.
11	Same.	Crushing injury.	Signs of internal hemorrhage. Fourth and ninth ribs broken. Dulness in flanks.	Immediate laparotomy. Felt whole right lobe crushing.	Total crushing of posterior portion of right lobe of liver. Fractured ribs.	Died same day.
12	Same.	Kick.	Vomiting. Severe pain in epigastrium. Rigidity of abdomen. Dulness in flanks.	Laparotomy. Glisson's capsule extensively torn off and deep tear at edge. Tamponed.	Hematoma in liver surrounded by necrotic zone. Pleuropneumonia.	Died after seven days.
13	Wilkerhauser. Central. Chir., 1897.	Kicked by horse.	Signs of internal hemorrhage.	Laparotomy. Three-inch tear in left lobe. Tamponed.	Autopsy showed pneumonia. Overlooked another tear in liver and vein.	Died five days later.
14	Fraenkel. Beit. Klin. Chir., v, 30.	Kicked by horse.	Pain in abdomen. Severe collapse. Dulness in flanks. Rigidity of abdominal walls. Tenderness.	Laparotomy eight and one-half hours after injury. Suture and tamponade.	Autopsy showed no more bleeding. Sutures had held.	Died 20 hours after operation.
15	Leeming. (Unpublished.)	Caught between wagon wheel and wall.	Rigidity of abdominal wall. Pain in epigastrium.	Laparotomy three days after injury. Large tear in right lobe [illegible]	.....	Died two days after operation.

LAPAROTOMIES FOR RUPTURE OF LIVER, WITH RECOVERY.

No.	Author and Journal.	Injury.	Symptoms.	Treatment.	Remarks.
1	Delatour. Med. News, 1900	Thrown from tally-ho coach.	Shock and internal hemorrhage. Dulness in flanks.	Laparotomy 24 hours after injury. Tamponed.	Complicated by fractures of right ninth and tenth ribs.
2	Same.	Caught between two cars.	Shock and severe increasing internal hemorrhage.	Laparotomy 12 hours after injury. Sutured tear on under surface of right lobe.	Operation at first refused, but consent given when condition grew worse.
3	Dalton and Auvray. Rev. de Chir., 1896.	Fall from height.	Localized pain, tympanites, dulness. Hematuria.	Laparotomy 19 hours after injury. Tamponade.	
4	Same.	Kicked in abdomen.	Pain in epigastrium. Dulness. Pulse, 104.	Immediate laparotomy. Tamponed.	Removed tampon after 24 hours; had to renew same.
5	Carwardine. Lancet, 1900.	.....	.....	Laparotomy (immediate). Tamponed.	Patient was pulseless when began operation.
6	Faure. Bull. de Soc. de Chir., 1896.	Kicked by horse.	Severe pain in right hypochondrium.	Laparotomy three hours after injury. Tamponed. Left forceps on vessel.	Gall-bladder completely loosened. Rupture of large vessel.
7	Hahn. Centralbl. für Chir., No. 28, 1899.	Ran against tree while riding bicycle.	Unconscious. Signs of internal hemorrhage. Pulseless. Dulness.	Laparotomy five hours after injury. Suture of tear and tamponade.	
8	Hartmann. Bull et Mem. Soc. Chir., p. 143, 1899.	Hurt during fall of house.	Contracture of abdominal walls.	Laparotomy four hours after injury. Tamponade.	Tear was near gall-bladder. Bile flowed from wound for two weeks.
9	Kronlein. Corrsp. Blatt Schweizer Aerzte, No. 20, 1898.	Fell seven feet.	At first slight symptoms.	Laparotomy. Deep tear sutured, which checked hemorrhage.	
10	Langenbuch. Centralbl. für Chir., No. 28, 1899.	Fell three stories.	Signs of internal hemorrhage.	Laparotomy. Tamponed between diaphragm and upper surface of right lobe.	
11	Martin. Lancet, 1897.	Crushing injury.	Severe pain in right side of abdomen. Next day condition grew worse, with signs of peritonitis.	Laparotomy 32 hours after injury. Hot water checked hemorrhage. Drainage to wound.	Large amount of free blood and beginning peritonitis.
12	Schuchardt. Berl. Klin. W., No. 32, 1898.	Crushing injury.	Pain in epigastrium, which increased. Vomiting. Decreasing quality of pulse.	Laparotomy six hours after injury. Tamponade.	Tear on interior aspect right lobe.
13	Trojonow. Centralbl. für Chir., No. 7.	Fell from steps.	At first pain, which increased. Dulness in right iliac region. Signs of peritonitis on third day.	Laparotomy on third day. Tamponade.	Six days after operation had a subphrenic abscess, which was drained.
14	Zeidler. Deut. Med. W., No. 37, 1894.	Run over.	Contracted muscles of abdomen. Pain in shoulder and in abdomen.	Laparotomy four hours after injury. Suture of large tear and tamponade of tear on interior aspect or right lobe.	Large amount of blood in abdominal cavity.
15	Fraenkel. Beitrage zur Klin. Chir., vol. xxx.	Fell from height.	Pain in abdomen. Eructations. Marked collapse. Dulness in flanks. Contracted muscles. Abdomen tender.	Laparotomy 11 hours after injury. Suture of large tear and tamponade of smaller ones.	Large tear in right lobe. Two to three pints of blood in abdomen.
16	Trendelenburg. (Wilms.) Deut. Med. W., No. 35, 1901.	Run over.	Severe pains in epigastrium. Dulness and tenderness over left lobe.	Immediate laparotomy. Tamponade.	
17	Trendelenburg. (See above.)	Crushing injury.	Unconscious for short time. Signs of internal hemorrhage. Pain in epigastrium and right shoulder. Dulness in flanks.	Laparotomy four hours after operation, but did nothing. Second laparotomy on fifth day for recurrence of hemorrhage.	Had pneumonia during period of convalescence.
18	Guinard. Bull. Soc. Chir. de Paris, May 26, 1897.	Kicked by horse.	.....	Laparotomy. No method of hemostasis given.	Large amount of free blood in peritoneal cavity.
19	Trendelenburg. (Wilms.) Deut Med. W., No. 35, 1901.	Ran against pole of wagon. Was on bicycle.	Severe pain in abdomen. Signs of internal hemorrhage. Dulness in flanks. Contracted muscles.	Laparotomy (immediate). Tamponade of deep tear.	Large tear in right lobe. Bile secreted through gauze.
20	Hildebrandt. (Thomen.) Arch. Klin. Chir., vol. lxvi.	Caught between two wagons.	Collapse, severe pains in abdomen. No rigidity.	Laparotomy two hours after injury. Wound on inferior aspect right lobe suture.	
21	Mercade Revue de Chirurgie.	Run over by wagon.	Signs of internal hemorrhage. Pain over entire abdomen. Three abrasions over left costal arch. Dulness in flanks. Increasing anemia.	Laparotomy one hour after injury. Extensive rupture on right lobe. Suture and tampon.	
22	S. W. Little. N. Y. Med. Rec., Dec. 22, 1900.	Struck in abdomen with piece of wood.	Collapse, signs of internal hemorrhage. Severe pain in epigastrium.	Laparotomy four hours after injury. Tamponade.	Deep tear on inferior aspect right lobe.

After looking at this rather dark picture, let us see if modern surgery has improved these statistics any, through early or even late operative interference. In 1890 the percentage of mortality after splenectomy for rupture of the spleen was 100 per cent., three cases; from that date to 1900 there were 34 cases operated on, with a mortality of 41 per cent. I have collected all of the cases operated on to the present time, including my own. There had been 50 cases, of which 28, or 56 per cent., recovered, and 21, or 44 per cent., died. Of those who recovered 27 of the 28 have been operated on since 1895. Seven of the 28 were operated on in the first six hours after injury, 5 within twelve, 5 within twenty-four, 1 within thirty-six hours, and one each was operated on on the fifth, eighth and eleventh day respectively. Of those who died after laparotomy 7 were performed within six hours and of these three died of acute anemia and one of pneumonia. Two were operated on within twelve hours. One died of peritonitis and anemia, the other of anemia alone. Of 4 operated on in the first twenty-four hours, two died of complicating injuries, one of shock and one peritonitis. Of 2 which were operated on within thirtysix hours one already had peritonitis and the other died of anemia. Of 2 operated on in forty-eight hours one had extensive peritonitis at the time of operation and the other had suffered greatly from hemorrhage. One was not operated on until the fifth day and died of septic peritonitis.

The first laparotomy for rupture of the liver was performed by Willette in 1888. Since that time up to the present, with the case above quoted, there have been 37 laparotomies for rupture of the liver. Of these 22, or 59.5 per cent., recovered and 15, or 41.5 per cent., died. Of those which recovered 14 were operated on within six hours after the injury, 3 within twelve, 2 from twelve to twenty-four hours after the injury, and one on the third day. Of the fatal cases, in one the operation was not performed until the third day; one died of hemorrhage from the portal vein shortly after operation; in one no attempt was made to treat the tear on account of the collapsed condition; in one it was not discovered until twenty hours after a splenectomy was performed. In one a second tear was overlooked and in two it was not found at the time of operation. One died of pneumonia and the autopsy showed that a tear in the liver and in the portal vein was overlooked. Only one case can be truly regarded as an unsuccessful one, in which the operation occurred eight hours after injury, and the patient had no further hemorrhage, as shown by autopsy. Of all of these ruptures of the liver all but 3 of the 19 which recovered have been operated on since 1895, and 8 of the 15 who died were operated on since that date. In a few reports the time after injury of the operation and the cause of death is not given both in the case of the liver and spleen.

In the above, if those cases which died of acute anemia, complicating injuries, overlooking a second tear, shock (primary) and being operated on too late (when septic peritonitis had already begun) are excluded, the mortality rate would be greatly lessened.

In 1896 Petry collected 42 cases of laparotomy for rupture of the stomach and intestine. Of these 14, or 33.6 per cent., recovered, and 28, or 66.7 per cent., died. One died of intercurrent disease, 5 of incomplete operations. Hence, the mortality was really only 52.3 per cent. (22 cases). Of 18 operations in the first twenty-four hours, 8 recovered, 44.5 per cent. Of 24 operations later than twenty-four hours, 6 recovered, or 25 per cent. Since Petry's article I have been able to collect 40 cases, of which 19, or 47.5 per cent., recovered, and 21, or 52.5 per cent., died. If we exclude one case in which death occurred as the result of overlooking two perforations and a second death (Bullitt) in which operation simply consisted in opening a fecal abscess one month after a rupture of the intestine, there will be out of 38 cases, 19 recoveries, or 50 per cent., and 19 deaths, or 50 per cent. This certainly is a very gratifying advance and speaks in a convincing way of the value of early diagnosis and laparotomy in recent years. This is even more striking when we find that of the 19 recoveries, 16 were operated on in the first twelve hours and two in the second twelve hours following the injury.

In regard to the change which operations have made in the mortality of rupture of the kidney one need only to compare the statistics of Kuster, mortality 30 per cent. in 222 cases, with those of Keen or Wallis. The former (Keen) collected 22 nephrectomies for subcutaneous ruptures of the kidney. Five per cent. of these were primary, with one death (20 per cent. mortality), and 13 secondary nephrectomies, with five deaths, or 38.5 per cent. Wallis cites 14 nephrectomies for ruptured kidney, of which 9 recovered (43 per cent. mortality). Kuster collected 47 cases of nephrectomy for the same condition to 1896, of which 39, or 83 per cent., recovered, and 8, or 17 per cent., died. We thus see that if nephrectomy or nephrotomy (as in the above two cases of Dr. Halstead's) were made the rule soon after an injury the mortality would be reduced far below 20 per cent.

Up to 1894 there had never been a case of intraperitoneal rupture of the kidney operated on successfully. Since that time six cases have been reported, all of which recovered (De Quervain, Kehr, A. E. Halstead, Mixter, Tuffier and Souligoux).

Of injuries of the gall-bladder, only four laparotomies have been performed (Hermes, Garrett, Porter and De Forest Willard). Three of these recovered and one died (Porter). The latter was not operated on until thirty days after injury.

Of injuries to the urinary bladder, Alexander collected since the date of the first operation for intraperitoneal rupture (Willitt in 1876) 45 cases. Of these 23, or 51 per cent., died, and 22, or 49 per cent., recovered. If the first two cases are excluded (Willitt and Heath) on account of faulty method of suture (through all coats) there would be only 48 per cent. mortality in 43 cases. In extraperitoneal rupture the latest statistics are those of Mitchell in 1898, 90 cases with 83.3 per cent. mortality. During the preceding 15 years (1883 to 1898) it has been reduced to 70 per cent. My case quoted above will show how early recognition of the condition will reduce the mortality.

To recapitulate, the relation between spontaneous cures and operative interference is about as follows, at present:

SPONTANEOUS RECOVERIES.	Per cent.	OPERATIVE RECOVERIES.	Per cent.	
Spleen	15.8		56.	(50 cases)
Liver	21.8		59.5	(37 cases.)
Intestines	7.		48.	(42 cases, prior to 1896.)
			50.	(38 cases since 1896.)
Kidney (extraperitoneal)	70.		80.	
Kidney (intraperitoneal)	0.		100.	(6 cases.)
Bladder (intraperitoneal)	2.		52.	(43 cases.)*
Bladder (extraperitoneal)	11.		30.	(last 15 years) Mitchell.

TREATMENT.

When we compare these two columns there can be but one conclusion, and that is the basis of the plea which I would most earnestly make, viz., to give up our policy of expectancy and delay and to recognize our duty as soon as even a probable diagnosis of rup-

ture of one of the abdominal viscera without external signs has been made. Rather a few laparotomies in vain than allow the former mortality rate to continue.

It is our duty when called to such a case to examine it most painstakingly for some of the above general and local symptoms and inquire carefully into the manner of injury. Seen in the early hours, before the anemia has become too acute or the danger of sepsis too great, laparotomy or nephrotomy should be advised. The incision should be made in the median line above the umbilicus if we suspect a rupture of the liver, spleen or stomach, and below it if we fear one of the small intestine, colon or bladder. It can be enlarged, if necessary, to the right or left. For injuries of the kidney an oblique lumbar incision, which can be extended into the peritoneum if necessary, is best. If a large quantity of blood escapes it should be sponged out and search made for rupture of the liver, then for one of the spleen, kidney or abdominal vessels. A suture with non-cutting needle and silk is best for the liver if the tear is small. If larger it is best to tampon. For small lacerations of the spleen suture and tampon will at times suffice, but for the majority of cases only splenectomy will suffice, because as in my own case, the tissue will be so friable that sutures will tear out and tampons become displaced.

In ruptures of the gastrointestinal tract the tear, if longitudinal, should be closed transversely by Lembert suture and vice versa to avoid a stricture. At times resection may be necessary. It should be remembered that the ileum is most often frequently the seat of injury. In extraperitoneal rupture of the kidney the tampon will suffice if the organ is not too extensively lacerated. If the latter is the case primary nephrectomy will give the best results. In intraperitoneal rupture of the kidney the peritoneum must be stripped up until the tear is found and the kidney then treated as for the extraperitoneal variety of rupture, removing all clots from the peritoneal cavity first.

In rupture of the bladder, the prevesical (extraperitoneal) space should be first exposed, the bladder opened and explored with the finger; if a tear has been found it should be sutured with catgut, if outside the peritoneum, and then the pelvic connective tissue drained. If intraperitoneal it is best closed with a Lembert silk suture. In general it is useless to operate on cases when peritonitis has begun. Apparent shock should not deter from early operation. While we are waiting for it to pass off the patient may die of acute anemia. Shock should be treated in the ordinary manner. The anemia will respond best to salt solution. Do not give morphin if a ruptured intestine is suspected.

In conclusion let me again urge the profession in general and surgeons especially to examine these cases carefully and operate on them early if we wish to reduce the present relatively high mortality.

Growth of the Hair.—Dr. Jolly's work on the chemical composition of horse-hair shows that functional activity attains its maximum in the black hairs, which contain infinitely more phosphate of iron than red or blonde hairs. Falling of the hair is often observed in nursing animals; similarly, nursing women lose a great deal of hair. This is apparently caused by the fact that the phosphates are not fixed in the hairs, but are carried away by the milk secretion. Loss of hair in arthritic persons is quite different. An arthritic patient is one whose cellular nutritive functions are modified by his disease, and in whom the hairs effect the permanent fixation of the phosphates in themselves in a very imperfect manner.—Abstract from *La Presse Med.*

THE RELATIVE MERITS OF THE VARIOUS METHODS OF INTESTINAL ANASTOMOSIS.*

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At the outset I will state that my paper will be confined entirely to mechanical and experimental work. My work consists of six hundred and fifty experimental operations on the dead intestine and twenty on living pigs. Fifty operations were done in 1895 and 1896; two hundred in 1900; two hundred during 1901, and two hundred during the present year. All types of methods have been tested. No operation has been brought into the contest until it had been done more than twenty-five times. For speed, an average of time in ten operations of a kind has been taken. For accuracy the dead gut has been sewed, distended with air and sunk in water. Final results have been tested on living pigs killed two to three months after operation. Pigs have been used instead of dogs because the intestines are more like human.

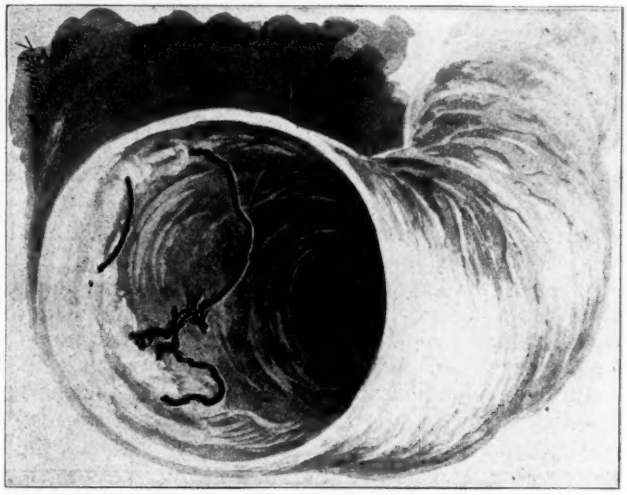

Fig. 1.—Connell continuous suture hanging in a pig's intestine, two and one-half months after an operation.

MERITS FROM A MECHANICAL STANDPOINT.

In considering the various methods of intestinal anastomosis our decision must be based upon three classes of work: mechanical, experimental and clinical.

Under the head of mechanical work we have three points for consideration: speed, accuracy and adaptability. Under the head of speed we found merit in the following order: Murphy button, Frank's coupler, Connell suture, crushable button and various forceps operation, Halsted's operation, Maunsell's operation. Under the head of accuracy and immediate results I have found them in the following order: Crushable button with two rows of continuous suture, Connell suture, crushable button with one row of sutures, Halsted's method and various intestinal forceps.

Of the three mechanical points we are to consider adaptability is, in my opinion, far more important than the other two. For instance, a doctor is summoned to see a case that "has been shot." He seizes a few instruments hurriedly and goes to the scene. He

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* Read at the Fifty-third Annual Meeting of the American Medical Association, in the Section on Surgery and Anatomy, and approved for publication by the Executive Committee: Drs. H. O. Walker, A. J. Ochsner and DeForest Willard.

finds that his patient has been shot in the abdomen. He has no mechanical appliance at hand. He makes an incision at once and finds it necessary to excise a portion of the gut. As he knows no method but the Murphy button, his patient dies. Again, he is called to see a case of colic and finds a strangulated hernia with gangrene. After his other experience he has taken up some form of forceps, Halsted's rubber cylinder, or some

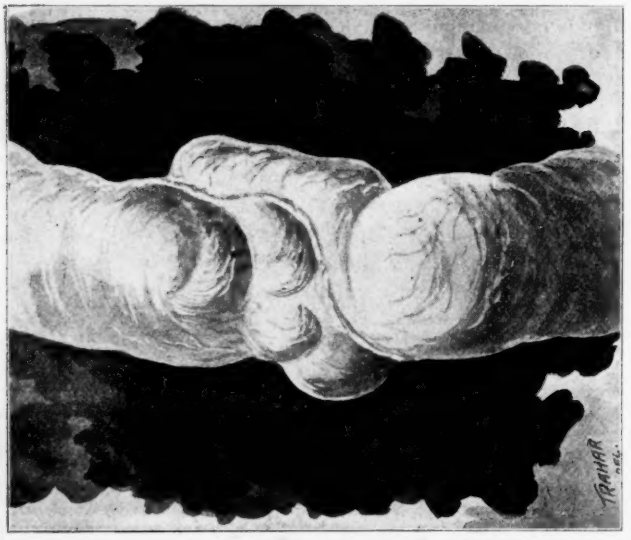

Fig. 2.—Pig's intestine two and one-half months after a lateral anastomosis, showing how the gut straightens out forming a perfectly straight canal.

other mechanical device, and has learned these methods of suturing, but he never thought of taking these devices to the country to see a case of colic, and he does not know any method of accurately suturing the bowel without some kind of a device for retaining the ends in position. This patient is in a dying condition before he gets his device and he again finds that he has learned the wrong method. He finally decides with

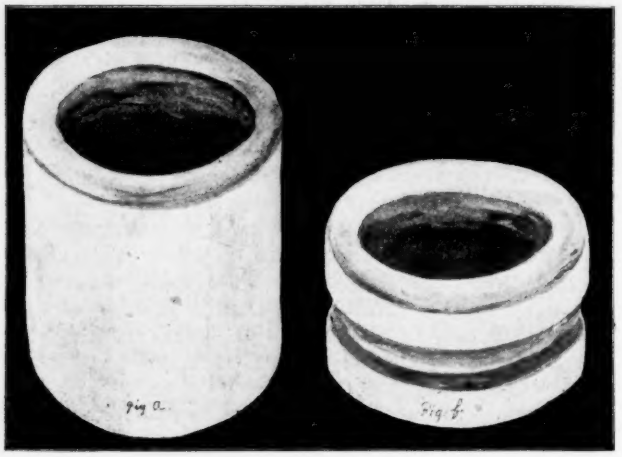

Fig. 3.—(*a*) Potato tube to be used with transfixion pins. (*b*) Crushable button (referred to in text).

Fenger, that "if he is to do intestinal surgery he must learn to suture intestines."

Under the head of adaptability we find that all mechanical devices for temporarily or permanently retaining the ends of the intestines in position are adapted to but a single kind of anastomosis and only under circumstances when the device happens to be at hand. Crushable and digestible appliances are adapted to all cases of intestinal anastomosis where a needle and thread and a potato, turnip or piece of bread can be found. The Connell suture is adapted to all cases of intestinal anastomosis, under all circumstances where a needle and thread can be had.

MERITS AS SHOWN BY EXPERIMENT.

Under the head of experimental work we consider the following points: first, fatality due to operation; second, amount of adhesion; third, firmness of union; fourth, caliber.

My own experimental work consists of twenty operations on living hogs. Of these one died from anesthesia; two were operated on by O'Hara's forceps; each died three days later from total obstruction. A postmortem showed in each case that the end of the intestine, which had been crushed in the bite of the forceps and had subsequently been turned inside the intestine, had absolutely and firmly united and produced complete obstruction. Of the two operated on by the Murphy button, one lived in a bloated condition, without gaining in weight, for three months and finally died of cholera without shedding the button. No opportunity to examine the specimen. The other died eight days after the operation, postmortem showed non-union, with both ends of the intestine open. One lateral anastomosis

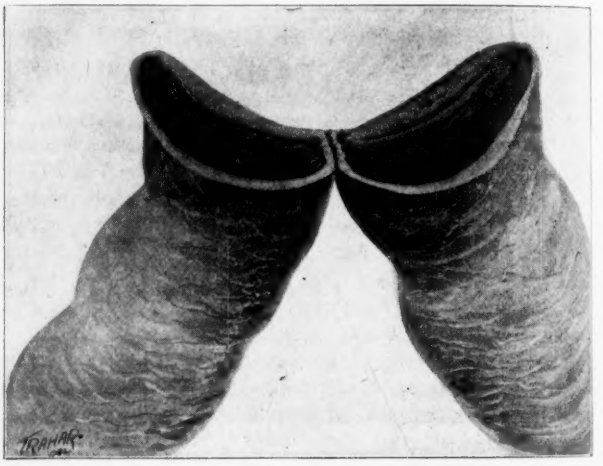

Fig. 4.—Three Connell sutures placed at the mesenteric attachment ready for insertion of tube.

was done with the crushable button with a perfect result; one gastrointestinal anastomosis was made with the Connell suture with perfect result; one Halsted circular suture was done with perfect result; of six operations done by Connell's method, three were continuous and three interrupted sutures—all successful; six operations were done by the aid of the crushable button, three interrupted and three continuous—all successful. In this connection I will quote the experiments of Edmund and Stabb, who did twenty-one operations on dogs—seven by Halsted's method, all recovered; seven by the Murphy button, five recovered, two died of non-union; seven by the Laplace forceps, four recovered, three died of non-union.

Of the intestines examined after the hogs were killed, two had omental adhesions covering what seemed to have been a leak in the bowel, one following operation done by potato button and interrupted Lembert stitch and the other by the use of the interrupted Connell stitch.

As to the firmness of union, I could see no difference except that the Lembert stitch had produced a thicker and heavier scar, due, no doubt, to the irritation of the stitch on the outside. Microscopic union has been inves-

tigated by Barbat. His work seems to prove that for all practical purposes no essential difference exists. I could notice no appreciable difference between the lumen of the gut following operations by various methods. Plaster casts of the lumen proves that there is no appreciable difference between the amount of constriction produced at the time of operation and that existing after union has taken place. Plaster casts indicate that the chief element influencing the diaphragm or caliber is the amount of tissue included in the bite of each thread.

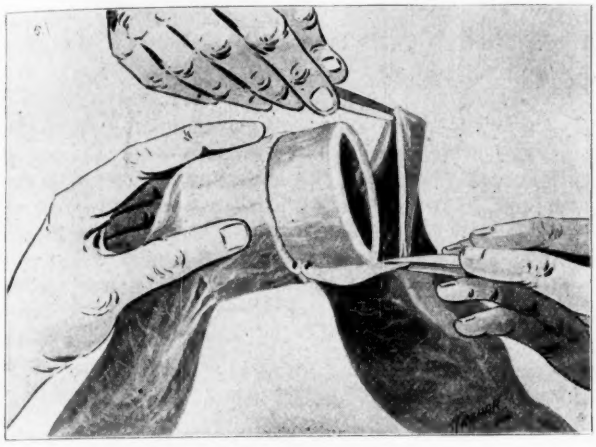

Fig. 5.—Inserting digestible tube.

Hence the necessity of including as little tissue as possible in each loop where a quilt suture is being used.

Following the Connell operations in which a continuous suture had been used, in three cases the suture was hanging partially free and partially attached across the intestinal canal, two months after the operation. In every instance it required a good deal of force to tear it out of its attachment. I reproduce a drawing showing one of these threads. The only peculiarity noticed in the Halsted case seemed to be a crooked or twisted condition of the line of union, due, I believe, to the intestine being so prone to twist and become askew during the suturing with mechanical appliances, more especially with the Halsted cylinder.

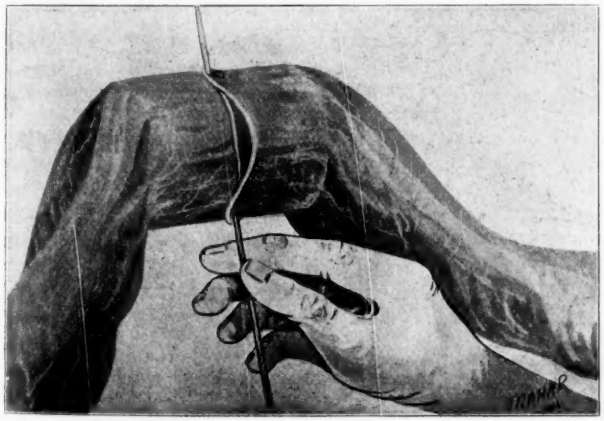

Fig. 6.—Inserting first transfixion pin, including the edges of both intestines and passing through the potato tube.

THE AUTHOR'S CONCLUSIONS AS TO THE RELATIVE MERITS.

In drawing my conclusions, I have reached my decision by elimination. In the first place, I would eliminate all intestinal forceps except the O'Hara forceps, from a merely mechanical standpoint without ever bringing it to the experimental stage, because they are in no way mechanically superior, are in many ways inferior to other methods and possess the great disadvantage of many times not being present when needed. Second, I would eliminate the O'Hara forceps as positively dangerous, needing no further proof than the specimens removed from the animals of my own experiments, and because it has no mechanical advantage and may not be present when needed. Third, I would eliminate appliances like Halsted's cylinder, Lee's holder, etc., notwithstanding the fact that the results following are excellent, for the reason that they are awkward, require removal and are many times not present when needed. Fourth, I would eliminate Frank's coupler because it is a foreign body left in, because of the uncertainty of the pressure that would be made by the rubber and because it is many times not present when needed. In this connection I will state that I recently received one which had been bottled for a considerable length of time and the rubber tube had become old and cracked and did not have strength enough to hold the weight of six inches of empty intestine; in fact, the pressure would not have been enough to prevent leakage much less produce constriction and sloughing as it was intended to do. Fifth, I would eliminate the Murphy button except in cases of extreme shock which require

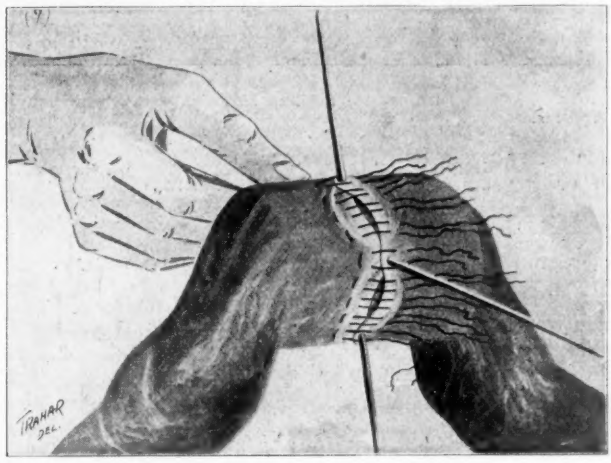

Fig. 7.—Quilt sutures inserted but not tied.

speed, because it is a foreign body which does not always come away; second, it depends on sloughing for its release and must necessarily be much more fatal than a well-applied suture. Sixth, I would eliminate the crushable button because it requires a longer time than the Connell suture and only permits of an external suture and is not always as convenient as a simple thread. Seventh, I would eliminate the continuous Connell suture because it is more difficult to place at the end than an interrupted suture and remains hanging partially loose across the intestine for months after the operation, thus making at least a remote danger of obstruction. I would eliminate Maunsell's operation because it is complicated, requires two openings, is slower, and is done by an overstitch instead of a right angle stitch.

I would class the interrupted Connell suture as the ideal suture, the acme of surgical perfection, and as far as we may ever hope to go in intestinal anastomosis. The excelling virtues of the Connell suture are: it is quick, accurate, surgical, direct and adaptable under all circumstances, and by force of worth will become the standard. It has this objection, however, which is a serious one, that it is hard to understand by the man who is not a natural mechanic or who does not have an

opportunity of seeing an actual demonstration, or by the "occasional operator," who will naturally forget the method between operations.

A METHOD WITH SIMPLER TECHNIC.

Competent surgeons have told me that they have learned the Connell suture two or three times by demonstration and have yet been unable to perform the operation after some months have elapsed. It is practically impossible to learn the method from cuts presented in

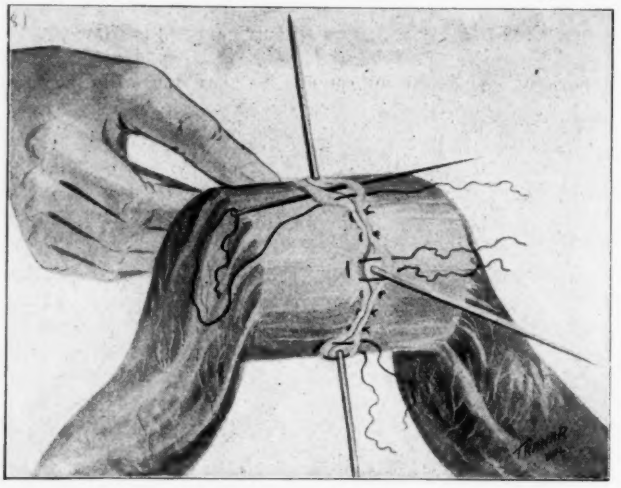

Fig. 8.—Quilt sutures inserted and tied except those surrounding the pins.

the literature. It is, therefore, necessary to have another method and a simpler method for the so-called occasional operator who makes no specialty of surgery. I therefore present to you drawings of a method which I have recently devised, I may say, since my work was completed, the simplicity of which I have proven by having three physicians as well as two junior medical students perform the operation without any instructions except the drawings here represented. They

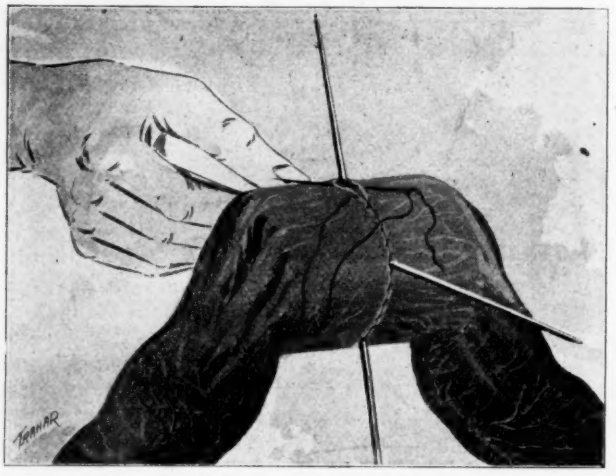

Fig. 9.—Placing the continuous running stitch.

all did the operation perfectly. I think it will require no argument to convince that the method is simple, easy of application, and places the operation of intestinal suturing in the reach of any one who can pass a needle.

TECHNIC OF THE AUTHOR'S METHOD.

All that is required in making this anastomosis is some digestible substance like a potato, turnip, carrot, bread, etc., with two pins which may be simply toothpicks, small pieces of wood, a hat pin, a knitting needle, darning needles or two probes ordinarily carried in a pocket case and a needle and thread. The following are the steps of the operation:

Place two or three Connell sutures at the mesenteric border (Fig. 4). Insert a thin digestible tube (probably the best may be cut from a potato). One end of the intestine is held on the tube with the left hand while with the right hand and the hand of an assistant the other end of the intestine is drawn over the tube (Fig. 5) and held in place, while with the right hand a pin is inserted through the intestine including the edges of both ends and passing through the potato (Fig. 6). Another pin is then inserted likewise at right angles to the first holding the intestine in four places (Figs. 7 and 8).

Any method may then be chosen for suturing. The quickest method and probably as good as any is a continuous suture (Fig. 9). This method is the quickest of all intestinal sutures, as I have found since my work was done, and can be placed almost as quickly as the Murphy button. The suture may be done by simple interrupted Lembert stitches or by the Halsted quilt stitches (Figs. 7 and 8).

After the suturing has been completed and the pins removed, the tube is slipped away from the site of the operation and crushed to prevent any possibility of obstruction.

While I believe the Connell method is mechanically almost ideal for the reasons expressed previously, I am also of the opinion that the operation here described has some merit and I hope may prove worthy of a place in surgery. It requires no complicated apparatus. Any one can learn it. Any one can do it. No one can forget it. And above all, it is effectual.

DISCUSSION

ON PAPERS OF DRS. EISENDRATH AND COFFEY.

DR. W. H. CARMALT, New Haven—One of the gentlemen at the last meeting spoke of the fact that gunshot wounds were always double, but this is not true. We do find gunshot going through the edge of the bowel in such a way as to make but one wound and I do not think we are justified in counting on finding two; you must search the bowel all the way through and it is unsafe to leave any portion of the intestine unsearched in our work. The danger of hemorrhage from wounds of the mesenteric vessels is very great and there can be no question in my mind that we must search every wound even to the extent of eviscerating the abdomen. As to the importance of immediate operation the sooner we get at the patient the better and the ideas that have been suggested—which, I think, are entirely exploded—that this subject should be taught to the general practitioner rather than to the surgeon and that we can wait for symptoms are not true. We must get there before symptoms occur and the sooner we can get at our patient's intestine the better—even running the risk of a certain amount of septic work. We must suppose that we can get asepsis. I have operated in the country where all you could get was hot water, but you can boil your towels sufficiently. I think so far as possible we must run a certain degree of risk. There is more risk from delay than from sepsis and it does not add to the danger to operate. Dr. Eisendrath's paper interested me very much. He simply emphasizes the same principle that while we want to be as careful as we can in our diagnosis it is impossible to make one in some cases and exploratory operation is the thing to do.

The dangers of the patient from the operation is very much less than the danger of delay. Secondly, shock is a great danger, and I can not but emphasize this point. We must not wait for symptoms but get at the intestine as soon as possible. I began my work as a physician under the pupilage of the late Dr. Clark, who, you will remember, was a great exponent of putting the bowels in a sling. In every form

of peritonitis he simply gave opium. Aseptic surgery has shown us that this is false and we can do better by following Ochsner's plan in appendicitis, where we have the same subject to deal with. Do not let anything get into the alimentary canal. I have tried this plan for years with all abdominal operations, simply keeping the bowel empty and not even giving ice water. Injections into the rectum will serve every purpose. As to carrying anything through the other way, we simply make mischief. The Section is to be congratulated on Dr. Coffey's extensive work on this question and I can only say that his conclusions have agreed very much with my own, only his method is somewhat newer. The using of the potato is not entirely new, but it is an excellent procedure. Although he says that Murphy's button is a very acceptable and sure method in an emergency, I prefer every time to use the suture rather than leave a foreign body in the intestine. Murphy's button does sometimes stay in in cases of gastro-intestinal anastomosis and causes trouble. For an emergency, however, it does fairly well. It is not worth while for me to speak of the value it has been to intestinal surgery, but I must say I would prefer, if my intestine were to be sewed up, that it be done by continuous suture rather than a Matas suture. The continuous suture is a tighter suture than any interrupted suture we can make. When properly applied it is certainly the ideal, in my mind, although, of course, the diagram that has been given and the experiments that have been made have so much greater weight than the limited experience of the ordinary practitioner that that method must be accepted probably in place of mine.

Dr. F. Gregory Connell, Leadville, Colo.—Dr. Eisendrath's paper has certainly brought to our attention a most important and at the same time a most neglected branch of abdominal surgery. We can all agree with him when he says: "Expectant treatment is more dangerous than laparotomy." With our present light, exploratory laparotomy is decidedly the best method of procedure, but it is far from satisfactory and efforts should be made to arrive at some safer method of diagnosis. Even in normal individuals exploratory laparotomy is not to be lightly considered, much less so in patients suffering from the severe shock of an abdominal contusion. The degree of shock, or other symptoms, are notoriously unreliable and indicate in no way the extent of the damage done to the viscera. Cases exhibiting the most severe signs and symptoms are frequently opened and no lesion found, while on the other hand, cases that have received but the slightest injury, and suffered hardly any inconvenience from it, often die of perforative peritonitis. If we are to submit all suspected cases to laparotomy, many persons will be unnecessarily exposed to all the dangers of a major operation, which, to be sure, are smaller than those of awaiting symptoms, but still of such danger that we should not rest with what has been accomplished but strive to arrive at a safer method. In a method of treatment we may expect and do not object to a mortality rate, but a mortality rate of at least 2 per cent., according to Dr. Keen, in a method of diagnosis is something which calls loudly for improvement. A paper with such an object in view, I had the honor of reading before this Section yesterday.

As to Dr. Coffey's paper, the author is to be congratulated on the character of the work presented; it is only by such painstaking and thorough investigations that any of the moot questions of intestinal surgery can be settled, or even be brought near to a settlement. As he has mentioned a method of suture which I described before this Section last year, it will not be out of place to mention additional cases. At that time nineteen cases on the human being were reported. At this time about thirty-five additional cases have been communicated to me, and no objection to the method is presented by any of these operators who have employed it. As to the continuous or interrupted suture, either may be used in this method. There has been, is, and apparently always will be, a difference of opinion as to their comparative advantages and disadvantages. The continuous will occupy a longer time in becoming separated from the bowel and passing into the lumen than will the interrupted. By using a through-and-through stitch this eliminating process will occupy considerably less time than with the Lembert stitch. As to the difficulty of understanding the method, all intestinal sutures demand some conscientious study. This is essential to a satisfactory outcome in all methods and none more so than the Czerny-Lembert. The question has been asked: "What is the advantage of placing the last knot within the lumen; why not employ a Lembert for the last stitch?" It is just such a weak spot that we are trying to obviate. If 12 Lembert sutures are bad and 10 through-and-through and 2 Lembert sutures are better, then 12 through-and-through sutures are best. The chief advantages to be gained by penetrating all coats of the bowel wall and knotting in the lumen may be summarized as follows: 1. Increased security. 2. Less danger of leakage. 3. Smaller diaphragm. 4. Fewer adhesions. 5. Less danger of necrosis. 6. Absolutely no foreign body. 7. Decrease in time.

Dr. H. M. Sherman, San Francisco—I, too, have experienced considerable difficulty in carrying in my mind the technic of the Connell suture. I would suggest the method of Tait, which is to use coat sleeves for an occasional rehearsal. With a needle and thread you can easily suture two sleeves according to this method.

Dr. J. S. Horsley, El Paso, Tex.—Some years ago while working experimentally on dogs a new method of intestinal anastomosis occurred to me and a preliminary note of it was published at that time. I have never had occasion to do the operation on a patient, but the method has been worked out very satisfactorily on dogs and cadavers. It is as follows: The mesentery is incised for several inches at right angles to the intestine, or a V-shaped section removed to facilitate the subsequent manipulation. The ends of the bowel are then placed side by side, opening in the same direction and being in contact along their free surfaces, opposite the attached mesentery. A pair of artery forceps inserted in the ends and clamped holds them in this position. The intestinal ends, after being so fixed, look like a double-barreled shotgun. A finger of the left hand is inserted into one end of the intestine and the thumb into the other, and over them as a bobbin a Cushing suture of fine silk in an ordinary cambric needle is commenced. The first stitch approximates the portion of the two limbs of the intestine near the mesenteric attachment. The suture is then carried obliquely for about two inches when dealing with the small intestine, to the border opposite the mesenteric attachment, and continued over the other side, where it stops at a place corresponding to its point of commencement and is tied. The bowel is now partly everted, exposing a U-shaped septum, grasped by the artery forceps first applied. This septum is cut away with curved scissors, leaving a margin of about one-third of an inch. An overhand suture of silk in a curved needle is then commenced at one edge of the "shelf" left by cutting away the septum, and is carried through all the intestinal coats. When the suture reaches the end of this shelf, it is continued by slightly invaginating the unsutured portion of the resected ends, which consists of about one-fourth of the entire circumference. It terminates at its point of commencement. The first line of sutures is now finished by continuing it about one-fourth of an inch from the overhand suture. The incision in the mesentery is closed.

The advantages claimed for this operation are:

1. It is a suture method, the instruments required being of the simplest.

2. The result looks as if the ends of the bowel were cut obliquely at the expense of their free borders and then united. This gives a diameter at the sutured portion greater than the normal diameter of the intestine and so obviates stricture.

3. It can be very rapidly applied.

4. Applying the sutures during most of the operation over the fingers as a bobbin increases the safety of the suturing.

5. The internal row prevents all hemorrhage.

Dr. C. E. Thomson, Scranton—I have had the same experience in learning the Connell suture. I paid what I thought was ordinary attention to Dr. Connell at last year's meeting, but I failed to learn the stitch. When I saw his article I practiced the stitch for a long time and since I learned it I have not allowed myself to forget it. I have done it experi-

mentally 80 times on a large number of dead hogs and on a number of dogs which unfortunately escaped. I have done it four times on the living subject since the last meeting. Once was in a case of gunshot wound and the man died five days afterward from an undiscovered wound of the kidney. The Connell stitch had repaired perfectly. In a case of gastro-intestinal anastomosis which we did for malignant disease of the pylorus I used it. The man had suffered for 18 months and his recovery was most marvelous. He gained 14 pounds the second week after the operation and this encouraged us to do more surgery on him, and so we tried to take out the growth. I cut into him the second time, when I found that the disease had done its share in increasing the weight of the patient. It had advanced very rapidly in three weeks and I am free to admit it was no longer an operable case. We proceeded and after much difficulty removed the pylorus. We had a good gastro-intestinal anastomosis from our previous operation. In our dissection we found it necessary to place a Murphy button between the gall-bladder and the ilium, but the patient died one week later. The repair made by the Connell stitch was perfect, but the Murphy button had failed between the gall-bladder and the ilium. The demonstration made by Dr. Coffey appears very nice on paper, and it may be a good assistant to the subject. So far as time is concerned, after having practiced the Connell stitch for some time, I believe I can make an anastomosis while Dr. Coffey is paring the potato. It is a case of emergency and Dr. Connell says we can not do harm. I am heartily in favor of Dr. Coffey's statement that a surgeon must be able to do his work without carrying with him a whole set of appliances.

DR. M. B. TINKER, Baltimore—I think every one who has had experience in teaching students the methods of intestinal anastomosis on dogs appreciates the fact that it is a great deal easier to see it on paper than it is to do it. I think there is no surgeon who intends to practice any method of intestinal anastomosis who does not have preliminary practice on dogs or on some form of animal. We have used the Connell suture in one or two cases in the past year very satisfactorily. It is a stitch that is no more difficult to learn than most of the other methods and the results are certainly most excellent. As regards the Halsted suture, to my mind the most important fact brought out by Dr. Halsted was the necessity of taking in the submucosa. This is generally recognized and everybody knows it should be done. As to the use of the rubber bag, we find it is very convenient in anastomosis, particularly if there is a dilation of the gut before the point where you end the anastomosis. You may have the contracted intestine open and while we do use a rubber bag we teach our students to do the suture with needle and thread only. It is nearly always in the simple uncomplicated cases that we use the bag and it is a good thing in certain cases. In the teaching of students the point which I have found the most difficult to impress on them is surgical cleanliness in handling the ends of the intestines. It is far more difficult to make them understand this than to teach them the simple method of placing the suture.

DR. JAMES B. BULLITT, Louisville, Ky.—As to Dr. Eisendrath's paper, it seems to me to be of the very greatest importance and when we are able to peruse it in full we will find his conclusions will be of the utmost service to the profession. From what he has been able to tell us we are compelled to conclude that the mortality has been much diminished by the exploratory operation and the repair of the injuries. The important thing to bear in mind is not the danger of exploratory laparotomy, but rather the danger of not doing it. When the people come to understand this the mortality will be greatly reduced, much more than it has been in the last ten years. Like some other conditions, the public is growing to understand it. The danger often is not from operating, but from not operating, and it is in this class of cases that the principle is applied. The great difficulty is the tendency to shrink from doing what might be found to be unnecessary. When more surgeons have been impressed with the necessity of doing what may happen to be an unnecessary operation, we shall have a more united profession than we have had for a long time. The successful case passes out of mind very soon. The best way is to operate on these cases even if there are no positive or pathognomonic symptoms. If there was any particular symptom by which the surgeon would be able to say whether the operation was necessary or not, much of the difficulty would be done away with. The diagnosis is simple compared with deciding on the necessity of operating. The family will always object. In reference to Dr. Eisendrath's one case showing the danger of delay, it is certainly instructive. I remember a case which terminated fatally. It was that of a young woman who, while riding a bicycle, was struck by a passing vehicle. The shaft hit her in the abdomen, but she did not seem to be seriously injured. She was treated for five days by the family physician and it was thought she had a bad bruise. The symptoms became more alarming, she was decidedly swollen and discolored and there was gaseous distension and crepitation. A surgeon was summoned and her condition recognized as serious; immediate operation was done; a rupture of the abdominal wall had taken place and a coil of intestine had come out through it. The probability is that the rupture of the intestine was not primary but secondary and had the condition been realized earlier the life might have been saved. The abdominal cavity was free of infection and the infection which had occurred was in the cellular tissue beneath the skin. The operation was entirely successful but the patient died.

DR. J. P. LORD, Omaha—I wish to call attention to one principle which enters into the production of severe injuries of the intestinal viscera on which we are apt to place too little importance, in case of apparently slight injuries of the abdomen. The books give considerable information in reference to the modus operandi of ruptures of the intestine, but they do not lay particular stress on what I consider the principal factor, which is hydrostatic pressure, a portion of bowel which is loaded with liquids or gas receiving a sudden impact is very easily ruptured. Unless this principle is borne in mind we will be slow to understand how a very slight injury could produce such disastrous results. This was well exemplified in two reported cases. One was struck upon the abdomen by a pebble and the other by a lathe. I am strongly in favor of the principle brought out in the paper in reference to early exploratory operation. Some of these cases practically present little or no symptoms until peritonitis has begun. The Coffey method appeals to me as a valuable procedure, but of course we can only determine this by trial.

DR. W. J. MEANS, Columbus, Ohio—Injuries of the abdominal organs without external signs are of such frequency, and the prognosis so unfavorable if not recognized and treated properly, that the subject should receive the most careful consideration by the profession. Dr. Eisendrath's paper is a comprehensive study of the subject, and deserves much credit. There is one point mentioned by the writer that should be emphasized. It is this: Symptoms of shock or collapse are not always present or pronounced immediately after the injury. Much stress is placed on the signs in the text-books as evidence of visceral injury, and this undoubtedly leads the inexperienced physician to overlook grave lesions. If there is not much hemorrhage there is likely to be an absence of these signs, and it is only after the development of inflammatory or other physical symptoms that the injury can be positively diagnosed.

Laceration of one of the hollow viscera is more likely to take place if distended. In the primary examination I believe the fact should be determined if possible whether food or drink has been taken recently, and whether urine has been voided. I saw a case of extra-peritoneal rupture of the bladder a few days ago that emphasized both these points. The patient was drinking, and in a scuffle with a friend both fell, the knee of his partner striking him over the lower portion of the abdomen. He complained of pain, but aside from this there was no evidence of a rupture of the bladder. The symptoms that led to a diagnosis were infiltration of the cellular tissues of the lower portion of the abdomen, and absence of urine in the bladder. Forty-eight hours after the injury I made a suprapubic opening, and found the cellular tissues full of urine. There was a longitudinal opening in the bladder about 1½

inches long. The parts were properly drained, and the patient is now doing well. He stated that he had not urinated for at least 12 hours before the accident. Contusion of the abdomen should be watched closely for 24 hours, even when there is an absence of the cardinal signs of shock or collapse. I recently saw a case of appendicitis follow a severe contusion over the right inguinal regions. It developed within 48 hours. It might be suggested that the appendicitis was a coincidence. A careful study of the case led me to believe otherwise.

Dr. J. C. Munro, Boston—As to Dr. Eisendrath's paper and the symptom as regards the pulse, my own experience with internal hemorrhages is that the pulse frequently does not rise in from 12 to 24 hours. I instruct my house surgeon in all cases of abdominal contusion to call me if the pulse does not go up. This is a very important sign but is not sufficiently emphasized. I willingly confess to having opened several cases of abdominal contusion where there has been no hemorrhage or visceral injury, and I expect to do so in future until we have discovered some better means of diagnosis.

As to intestinal suture, I do not think it makes much difference as regards the form of suture used in many cases. Any suture properly applied will hold against peristalsis, but will not hold against an over-distended gut. It is very important to get gas moving within the first 12 hours to prevent distension and leakage.

Dr. Wm. Oldright, Toronto, Ont.—I want to refer to one or two rare cases of rupture of abdominal viscera which have come under my notice. Since 25 years ago, before we were as far advanced as we are now in the diagnosis and treatment of suspected cases, I made a postmortem in which I found a rupture not only of the gall-bladder but of the substance of the liver and gallstones and clots of blood. The patient would not do as I wanted him to, and I know he would not have submitted to an operation. In this case there was no history of extreme violence. Another interesting case was a rupture of the spleen in which the history showed no cause except fright from a fire having broken out in a house in the neighborhood of the patient. As to early operation, there can be no two opinions; at least, there should not be. Where there has been sufficient violence to justify one in supposing that there may be a rupture we would be negligent if we did not give the patient the benefit of the doubt and make an exploratory incision.

Dr. Eisendrath, in closing—I want to thank the members for their energetic advocacy of the stand I took in reference to early operation and early diagnosis. If we examine these cases carefully and observe every condition by palpation and percussion we will be able to make a diagnosis. As to the points made by Drs. Bullitt and Carmalt, I want to say the position is one of the most difficult in which a surgeon can be placed; to come to a patient within several hours after an injury to the abdomen with slight, if any, external signs, and have firm enough conviction to open the abdomen. As Dr. Munro has said, I would rather open a dozen cases unnecessarily than to overlook a single one that I might have saved. A diagnosis is not of much value 24 hours after the injury. It is still of some value in cases of hemorrhage.

As to the points raised by Drs. Lord and Means, bursting was formerly considered the principal cause of injury, but direct pressure necrosis is perhaps the most frequent way in which the injury occurs. As to the injection test for the bladder, a report of one case which I operated on shows that it was deceptive, and this is a general experience. As to Dr. Munro's point in reference to the pulse, this has also been my own experience and we can not place too much value on it. If the profession has its attention called to the frequency of these cases I am sure that there will be more lives saved.

Dr. Coffey, in closing—Dr. Carmalt stated that the potato had been used before. I am familiar with the various methods of using the potato as an aid to suturing in anastomosis. The principal point in the crushable button, which I described more than two years ago, was that it was very thin and crushable, and had a groove into which the ends of the intestines were drawn and were sewed by two rounds of continuous or interrupted Lembert sutures. The first round was made to penetrate the muscular coat of the intestine. The second includes only the peritoneal coat. The other potato devices have not been used with the intention to crush at the time of the operation, but have been left to digest *in situ*.

The method which I demonstrate to-day is a plain digestible tube, over which the ends of the intestines are held by passing two pins directly through the ends of the intestine and the potato, fixing the intestines at four different points. I think there is nothing that involves this principle in the literature of intestinal surgery. This tube, although being an entirely different arrangement and carrying an entirely different idea from my crushable button, is also made thin and crushable, so that it can be slipped away as soon as the pins are removed and crushed, in order to prevent any possibility of obstruction. This method also has the advantage of entirely eliminating any danger of narrowing the lumen of the gut during the process of sewing.

Dr. Connell believes the continuous Lembert suture will probable be found in the intestine as often as the continuous Connell suture. In answer to this, I will state that I have found the stitch hanging loose in all the continuous Connell operations, but found it in none in which the Lembert suture was used; therefore, it seems that the continuous Connell suture is more liable to be retained. He thinks there is much less danger of adhesion when the knots are on the inside. I think this is probably true, but the difference between the two operations is very slight as far as adhesions are concerned. The chief features of the Connell suture are, that it brings the surfaces together in such direct apposition. It is also quicker than any other kind of intestinal suture, except the continuous over-and-over suture with the pins, demonstrated after the paper was read.

Dr. Thompson brings the same objection to the potato that I have brought to the mechanical appliances, namely, "the potato will not be ready when you want it." I can not conceive of many cases in which we would be called on to open the abdomen, and do an intestinal anastomosis without first suspecting there was something wrong. In a case of strangulated hernia you would certainly suspect it, and be prepared to do an anastomosis; in an intestinal obstruction you would, no doubt, be expecting it. Even if you were not expecting it, the potato could easily be prepared in five or ten minutes by a nurse, or even a bystander, and boiled for a minute or two I think, therefore, this is not a point worthy of great consideration, for you will find a potato or some digestible substance almost everywhere you will find a patient.

The man who most needs to understand this operation is not the experienced surgeon, nor the man who has practiced all these operations hundreds of times, but the man who would probably be called on to do one intestinal anastomosis in a lifetime, and there are very few chances that when this time comes he would be able to do an intricate operation like the Connell suture.

Personally, as I have stated before, I consider the Connell suture the ideal method for surgical specialists, but there are thousands of abdominal sections done annually in this country by men who will never understand the Connell suture. In fact, only a comparatively few men have paid sufficient attention to intestinal surgery to enable them to do good intestinal surgery, or to understand the details of any intricate intestinal operation. It is for these reasons that the Murphy button has become so popular, and this is the only way it will retain its popularity among the masses of physicians. The leading surgeons of the country will not continue to use the Murphy button to a great extent.

Dr. Tinker thinks it is hard to make students understand asepsis when the bowel is kept open during the entire operation, as in the Connell operation. This is certainly true, and this is a point in favor of the method which I have just demonstrated, because the intestinal canal is absolutely closed as soon as the pins have been inserted. Dr. Munro thinks that any suture will hold if properly placed. I am certain this is true, for when I began my experimental work, no matter what operation I used, I could not get a result which would bear distension with air. After I had done a large number I found

that no matter what method I used my results were always good.

The chief point, in my work as demonstrated to me, has been the necessity of using a method which does not require an apparatus, such as the Connell method, which is largely limited to surgical specialists, or the pin and digestible tube method which I have demonstrated to-day, and which can be successfully performed by anyone who pretends to do abdominal surgery.

If the president will allow me one minute, I would like very much to discuss Dr. Eisendrath's paper, but instead of commenting on it, I wish to present a method of suturing the solid viscera, which is mechanically correct. Those who have tried to suture the liver well know that the tissues will not hold sufficient pressure to control the hemorrhage from vessels of any considerable size. The cases which have been reported as having been controlled by direct sutures, I think would probably not have proven fatal if no suture at all had been used. A wound of the liver which does not involve one of the large veins, it is reasonable to suppose, would be like a wound of any other part of the body which does not involve any large vessels, in that the hemorrhage would cease of itself. Quilt sutures of all kinds, no matter what material is used, will be a failure in the suture of the liver if a direct suture is used the same as if no suture had been used; it is, therefore, necessary to use indirect pressure, the same as is used by mechanics of all kinds in sustaining roofs, supporting bridges, etc., across a space without support.

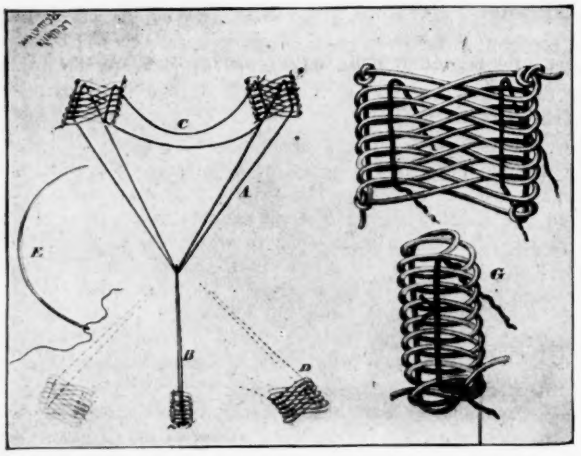

Fig. 1.—Mechanical drawing of the Y stitch. (*A*) Long quilt suture placed at the outer edge of catgut support. (*B*) Loop thrown around the deep quilt suture and supported on the opposite side by a single catgut support. (*C*) Superficial quilt suture passed through the inner edge of the catgut support. (*D*) Dotted lines showing the loop necessary in case the cut is entirely through the liver. (*E*) Long, slender, round, curved needle. (*F*) Double catgut mat for support of two sutures. (*G*) Single catgut mat for support of the anchor stitch.

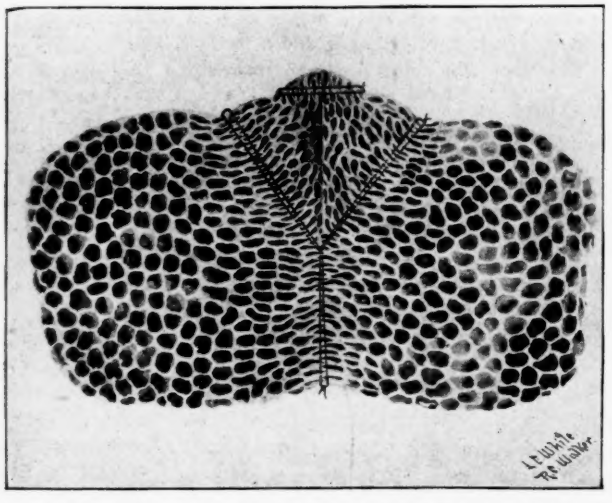

Fig. 2.—A section of the pith of a gourd sewed with the Y suture and superficial quilt suture, showing the direction of the stitch pressure by the compression of the pores.

The accompanying illustration (No. 1) represents a diagram of a method which is mechanically successful in suturing the liver tissues. All the pressure comes on Glisson's capsule at three or four points, which is protected by a weave of catgut. The pressure is all over the center of the incision and obliterates all space at the bottom.

Two sutures are used, one of which is applicable to an incision which does not penetrate the liver entirely, the other is applicable to wounds in which the liver is severed through and through. One we may call the Y-suture, the other the X-suture. The Y-suture is placed as follows: A round, curved needle, at least four inches long, armed with catgut or silk, is passed through the catgut support to the bottom of the incision, comes out on the other side, passed through another catgut support, re-enters through the support on the same side, goes back parallel to the other stitch and comes out through the support which was started, making a quilt suture. A suture is then passed from the opposite side of the liver, either straight through or indirectly, as may be convenient, includes the two threads of the quilt suture in its loop, turns and comes out on the bottom of the liver again, both ends passing through a single catgut weave, and is now tied in the form of a quilt suture, thus drawing the other suture into the bottom of the cut. The first suture is now tied and any amount of pressure can be used for the line of pressure is not against the suture, but is on the catgut support. In this way the bottom of the wound is brought in absolute apposition, and any amount of pressure

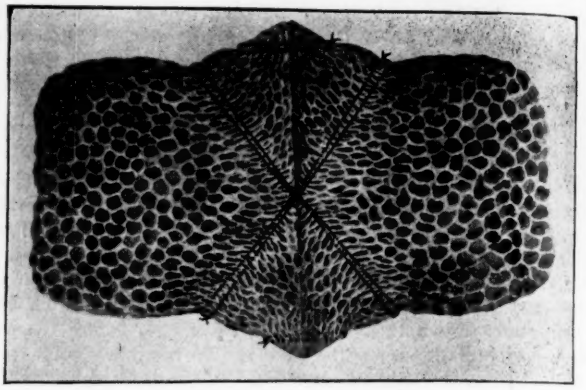

Fig. 3.—X suture, applied in the same manner after a cut entirely through the liver substance.

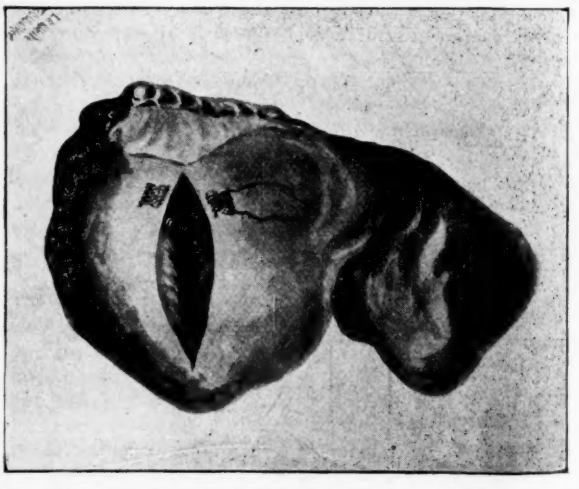

Fig. 4.—A sheep's liver with the catgut support and the deep quilt suture applied ready to tie with the anchor stitch from the under side thrown around it.

desired may be used. This does not bring the surface of the wound in as close contact as is desired, therefore a second quilt suture is passed through the edges of the support nearest the wound, simply taking in the capsule.

In this way the tissues are absolutely brought in contact; in this way the pressure can be brought to bear for closing the wound of the liver, as in any other part of the body. In closing the wound of the liver which extends entirely through its substance, a modification must be used. Instead of the single suture which goes into the bottom of the suture a second quilt stitch is passed through both sides at the bottom,

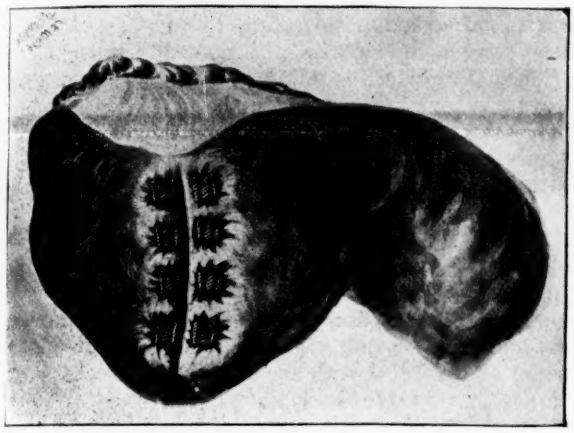

Fig. 5.—A sheep's liver which has been sutured by this method.

the same as the Y-suture above, interlocking the two sutures in the center of the wound.

In the second illustration you will notice a diagram of the stitch which has been passed through the pith of a gourd and in this way the pores have been partially closed along the line of pressure, which shows accurately the line where the pressure is made.

The points which I believe to be original are the uses of the catgut weave and an indirect or angular pressure made by a counter traction suture.

PRINCIPLES CONTROLLING OPERATIVE INTERFERENCE IN STRABISMUS.*

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Binocular vision as possessed by man is a function of wonderful accuracy. With normal acuteness of vision the deviation of the visual axis one-fiftieth of one degree from the fixation point will produce intolerable confusion and blurring. A deviation of one-fiftieth of one degree means an error in the relative lengths of opposing muscles of 1/240 of one millimeter, 1/6000 of an inch, 1/2 of the diameter of a red blood corpuscle. Simply from the standpoint of mechanical exactness what are the chances of making a perfect adjustment of the ocular muscles by operation?

The first thought that should guide us in the operative treatment of strabismus is: Operations do not cure strabismus, but they can lessen its amount so that it may pass unnoticed or may be overcome by other measures. At its best, operation may be a necessary step toward cure. More frequently it is but a means of diminishing and rendering less noticeable an incurable deformity. Recognizing the essential limitations thus placed upon operative interference, what are the principles which should guide us in determining the advisability of an operation, the particular form of operation to be chosen, and the immediate mechanical effect at which to aim?

The direction of the eye in the orbit is determined by two classes of structures—neuro-muscular and connective tissues. Speaking broadly, the eyeball rests in a hammock of connective tissue, in which it is swung and turned by the contractions of the extra-ocular muscles. The tissues immediately in contact with it move with it, those farther away share less in its motion. The comparison with a ball swung in a hammock is far more exact than to speak of it as a ball set in a socket joint. These connective tissues prevent the globe from being drawn back into the orbit, and may at any given time exert an influence that will determine the direction of the visual axis, when not overcome by preponderating muscular influence. But when one or more of the muscles are actively contracted the influence of the connective tissues, other than the muscular insertions, becomes comparatively insignificant, except in limiting the most extreme rotations. The problem of strabismus is practically a problem in neuro-muscular dynamics.

In attempting to solve it we must remember that the length and strength of a muscle depend on the nerve impulses passing to it. A muscle exists simply that its length may vary. That is its whole function. Equally characteristic is its capacity for hypertrophy under the influence of appropriate nerve impulses, and for atrophy when these are cut off. In view of these facts the first question to be asked regarding operative interference is: How will it influence the innervation of the muscles which act upon the eyeball, or will it leave that innervation quite unaltered?

According to the answer to this question strabismus cases are to be divided into two classes. Those in which operation is likely to modify the innervation, as in concomitant squint, where it will render possible binocular fixation, which may be operated upon early, but, rather tentatively, with great care to avoid any excessive effect, or any unnecessary disturbance of parts. The other class includes those in which there is no probability that operation will change the innervation of the muscles, as in paralytic strabismus; or in concomitant strabismus in adults, without any possibility of producing binocular diplopia, and without reflex binocular co-ordination of any sort. In these cases operation should be deferred until the extent of deviation has become quite fixed and incapable of further favorable modification by non-operative measures. This will be for paralytic squint many months or years after the occurrence of the paralysis. For concomitant squint it will be only after the most thorough trial of appropriate lenses and exercises calculated to modify the innervation of the muscles, and not until the years of early childhood have been passed or possibly not until adult development has been reached. In any such case the time for operation will be not until long observation has shown that the deviation is quite constant, or that the limits within which it varies are stationary. When such a permanent condition is to be altered by operation the operation should aim at the most exact mechanical adjustment of the visual axes possible, with proper consideration of probable cicatricial changes, and an allowance for slight tendency toward divergence with increasing age, in eyes removed from the influence of binocular co-ordination and excessive accommodative effort.

The idea that the setting forward of the insertion of one of the recti muscles increases its influence upon the rotation of the eyeball, and that the setting back of such insertion diminishes that influence, has been the basis

* Read at the Fifty-third Annual Meeting of the American Medical Association, in the Section on Ophthalmology, and approved for publication by the Executive Committee: Drs. Frank Allport, H. V. Würdemann and J. A. Lippincott.

of all previous arguments for operative interference in strabismus. It need not be dwelt on here. But it should be pointed out that any such increase or diminution of influence may be entirely nullified by changes occurring in the muscles. Thus, the muscle, the influence of which is supposed to have been diminished by tenotomy, might, under the needful nerve impulses, undergo an hypertrophy that would restore the excess of influence it had lost. Unintended effects of operation may cause a similar result. Thus, after advancement, a firm adhesion between the advanced tendon and the sclera may cause the muscle to exert its influence on the globe farther back than its original insertion, and thus cause a limitation rather than an extension of its influence.

Lateral displacement of the tendon of insertion is a means of modifying the influence of a muscle upon the globe, that has been neglected. If one could move the insertion of the internal rectus from the nasal side of the eyeball to a position directly above the cornea he would cause it to rotate the eyeball upward instead of inward. By moving the insertions slightly in that direction the influence of the muscle would be modified to a corresponding extent. By moving the insertions of the superior rectus and the inferior rectus toward the nasal side of the globe they could be made to supplement or replace the adducting influence of the internal rectus. Upon this effect of lateral displacement may be based certain new operations for strabismus; and this effect should be borne in mind in attempting any operative interference.

To think and speak of each muscle as effecting the movement of the eyeball in a single direction is simple and convenient, but it is entirely incorrect. An ocular muscle turns the visual axis toward its insertion only when the direction of its action and the visual axis lie in the same plane. The internal rectus can turn the eye directly in, and the external rectus can turn the eye directly out, only when the visual axis is horizontal. When the eye is turned down the internus tends to turn it down and in, or the externus tends to turn it down and out. When the eye is turned up the internus tends to turn it in and up, the externus to turn it out and up. Only when the eye is directed considerably outward, a quite unusual position, can the superior rectus turn it simply upward, or the inferior rectus turn it down. When both the superior and the inferior recti contract, the eye being directed forward, they tend to turn the eye in. Their influence in this direction increases as the eye is turned in. For a position of strong inward rotation this influence of the superior and inferior recti may be greater than that of the internal rectus. When both the superior and inferior oblique contract they tend to turn the eye out. Their influence in this direction increases as the eye is turned outward. For a position of strong outward rotation this influence of the obliques may be greater than that of the external rectus.

On the other hand, when the eye is turned strongly in the tendency of the obliques to turn the eye out disappears, and may even be converted into a tendency to turn the eye in. That is, when the eye is turned strongly in, five of the ocular muscles, the internal, the superior and the inferior recti, and the two obliques tend to turn the eye in, while only one, the external rectus, tends to turn it out. When the eye is turned strongly out, it is true, that to a still greater extent, five of the muscles, the external, superior and inferior recti and the obliques, tend to turn it out, while only the internal rectus tends to turn it in. This beautiful provision of Nature for reinforcing, and thus rendering easy and steady, the extreme ocular rotations ought not to be forgotten when we proceed to operative interference with strabismus.

The muscle which primarily turns the eye in a certain direction, as the internus rotating the eye inward, may be called the primary rotator. The four muscles that may come to its assistance can be called secondary rotators. The opposing primary rotators tend to equilibrium with the eye in a central position, and the visual axis directed forward. As such a position is departed from the primary rotator toward which the eye turns loses power, while the opposing primary rotator, placed upon the stretch, is rendered more powerful. Thus, as the eye is turned toward the nose the internus loses efficiency, the externus gains it. As the eye is turned toward the temple the externus becomes less influential and the internus more so. The tendency of the primary rotators is always to bring the eye back from extreme positions to a central position.

The tendency of secondary rotators is always to turn the eye farther from the central position; and their influence increases as the deviation becomes greater. It is chiefly the influence of the secondary rotators that perpetuates strabismus and renders it extreme. Strabismus operations will become scientific and satisfactory in proportion as they deal with the effect of the secondary rotators, either by what is done to the primary rotators or by extension of operative interference to the secondary rotators themselves. And every operation should be planned with reference to the secondary as well as the primary actions of the muscle or muscles which it is designed to affect.

THE NON-OPERATIVE TREATMENT OF STRABISMUS.*

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In 1893 at the meeting of the Ophthalmic Section of the Pan-American Medical Congress, when operative treatment of heterophoria was universally practiced by American oculists,[1] I ventured to say that it seemed to me unphysiologic, unnecessary, without analogy in the treatment of similar incoördinations elsewhere in the body, requiring an impossible delicacy of execution, without definite prognosis, and unsatisfactory in result. In the *Medical News* of Oct. 14, 1893, and Nov. 18, 1893, I stated more fully my reasons for the extempore statements, and the methods I had found successful instead of tenotomies, graduate, undergraduate or postgraduate. I think that there are to-day extremely few tenotomies performed for heterophoria, in comparison with the thousands that were being performed.

Following the reaction against the operative furore in heterophoria there has arisen a wise restraint in operations for strabismus.[2] As I have nothing to recant concerning the absolute inutility of operations in heterophoria, so I expect to have nothing as to a similar conviction concerning operations in strabismus. Catch the babies early enough and no operation will be needed, provided that requisite intelligence, patience, and con-

* Read at the Fifty-third Annual Meeting of the American Medical Association, in the Section on Ophthalmology, and approved for publication by the Executive Committee: Drs. Frank Allport, H. V. Würdemann and J. A. Lippincott.

1. The greater part by far of the work of the American specialist in diseases of the eye is not surgical. It is distinctly higher and nobler than surgery; it is the prevention of disease, and it is also chiefly medical in curing patients of systemic disease. Let us therefore disallow the term ophthalmic surgeon, and call ourselves ophthalmologists, or, because it is shorter and better, oculists.

2. Let us always say strabismus instead of squint. The latter word has a number of incorrect and absurd meanings in the lay mind.

science are brought into play. In my private practice I have in six years seen no case that I believe needed operation, and I have seen none benefited thereby—at least none that could not have been more benefited by other methods of treatment. In the limits required for our papers I can not set forth in detail the requisite proofs of this statement, which will undoubtedly seem as extreme to many as was the similar statement made nine years ago as to heterophoria. Those who still operate for heterophoria will, of course, deny the contention, but for those who do not operate in heterophoria the epitome and essence of my experience and of all I shall have to say is contained in two statements, which I believe to be incontrovertible truths:

1. *All strabismus is preceded by heterophoria;* intervene during this heterophoric or latent stage and every case is preventable. The duty of every good physician is to prevent disease. The heterophoric stage arises so early in life and may be so short in duration that the period of therapeutic opportunity may have passed without notice. But there will still remain a stage when rescue is possible, because even in the most fulminant cases nature will struggle against ruin, and preserve possibilities of cure for a long time.

2. *All chronic or permanent strabismus is preceded by a stage of acute, functional, or incomplete strabismus,* during which there has not been an utter renunciation or annihilation of the means and mechanisms of binocular vision. In this stage there is such a mixture of heterophoria and heterotropia that the condition is not describable by either name and to designate it properly we must use some such terms as exophoria-exotropia, esotropia-esophoria, hyperphoria-hypertropia, etc. During this period, long or short, according to the infinitely varying conditions, the physician's intelligent coöperation with the subtle wisdom and clinging to hope of the child's unconscious cerebral organism, will save the eye from ruin, preserve binocular vision and prevent deformity.

The chief duty of every good physician is to prevent disease. Surgery, the despair of medicine, has place only when prevention and natural methods of cure have been exhausted. The education of the community, therefore, becomes our highest obligation. The best method of education as to strabismus consists in demonstrating the fact by prevented and cured cases, that operation is not necessary. Every good oculist has hundreds of happy patients who have no deformity and who have binocular vision—so long as their spectacles are in place. Raise the lenses and instantly there is strabismus! That is a demonstration convincing to every one. I know of no more heinous sin of ophthalmologists than one that has been and still is revealed almost every day in my practice, the sin of telling parents that operation will be required but not before the child is seven or nine years old. At that late age, generally speaking, irreparable injury may have been done. The neglected hyperopia, astigmatism, or anisometropia may have produced the irremediable amblyopia, loss of innervation, psychic suppression of the image of one eye, etc.

I am not supposed to go into the question of the cause of strabismus, but, as all my treatment is based upon a theory, I may say that for all practical purposes, i. e., with unimportant exceptions, in the cases under discussion the poor abused muscles and tendons are not abnormal as a causal agency. All "myology" resolves itself, of course, into neurology. The incoördination of innervation which causes all heterophoria and strabismus is a functional disease, and is caused by the fact that the peripheral organs are so optically dissimilar and defective that binocular vision is impossible. Anisometropia and astigmatism are the initial sources of the impossibility of binocular vision, in the vast majority of cases.

I should premise that the foregoing statements require some self-evident exceptions which not only test, but often prove the rule. I except traumatic strabismus (in which class I include strabismus, the result of operation), paralytic strabismus, most cases of alternating strabismus, and some anomalous cases that defy all rules of diagnosis and treatment. But even in these no operation is usually advisable.

The non-operative treatment of strabismus naturally divides itself into:

1. **Prophylaxis.**
2. **The treatment of ametropia.**
3. **The treatment of heterophoria.**
4. **The treatment of amblyopia.**
5. **The treatment of physiologically curable strabismus.**
6. **The treatment of alternating strabismus.**
7. **The treatment of anomalous cases.**
8. **The treatment of incurable cases.**

1. THE PROPHYLAXIS OF STRABISMUS.

A. Public instruction should be given, in the many possible ways, that strabismus may be prevented, and in its earliest stages is curable without operation, but only on the condition that the child is put in charge of an oculist at a sufficiently early age. Parents, especially those with considerable ametropia or amblyopia, should be warned of the danger of the probable inheritance of ocular conditions in their children which may lead to strabismus. The eyes of all children from the age of one year should be periodically examined by the expert, in order to detect at the very earliest possible age any conditions which if neglected may lead to strabismus.

B. The individual child should be taken in hand by the oculist at the very earliest day when heterophoria, temporary, or acute strabismus is diagnosed.

2. THE TREATMENT OF AMETROPIA.

This primarily consists, of course, in getting proper glasses on the child as soon as it may safely wear them. It may not be necessary or advisable at this time to demand that they be worn all the time, but only at stated periods. The age at which spectacles will be accepted is much earlier than is supposed. If they are correctly prescribed, made, and worn, and if they are needed, a child of two years will soon cry for them, or cry without them, so pleasant is the result of their use to the shaping nervous system struggling to establish binocular vision. In the child under six years the sole successful method of diagnosing the ametropia is by means of retinoscopy. That there is probably not an "ophthalmic surgeon" in all Europe who can use this method with accuracy shows how far we are as a profession from knowing our science, practicing our art, or doing our duty. Upon the accurate diagnosis of the hyperopia, myopia, astigmatism, and anisometropia depends the entire success of the non-operative treatment of strabismus, and this diagnosis in young children can not be made without retinoscopy.

What the prescription shall be after the diagnosis of the static refraction has been made, will test the oculist's skill and judgment to the utmost. Every obstacle should be eliminated, every inducement made to the weak, injured, struggling efforts of the ocular mechanism toward binocular vision.

Mr. Priestley Smith in his Bowman lectures gives the "refraction" in 310 cases of convergent strabismus as follows:

		No. cases.	Per cent.	
M		3	1	
E. to H.	1.5 D	34	11	
H.	2. to 3.5 D	106	34	88
H.	4. to 5.5 D	122	39	
H.	6. D. and over	45	15	

Measured, of course, by the ophthalmoscope! Thus it is confessed that inadvertently the two great, almost the sole causes of strabismus, astigmatism and anisometropia, are utterly ignored!

It is said that the influence of hyperopia has been overestimated as a cause of strabismus; that hyperopia prevails also in non-squinting children; that the vast majority of the non-strabismic have hyperopia; that many emmetropes have strabismus, etc. The overestimation of hyperopia as a cause of strabismus is likely to be made by those only who have not learned the art and necessity of retinoscopy, and who have not suspected that the great chief causes of heterophoria and strabismus are anisometropia and astigmatism. That hyperopia exist in the orthophoric, and that the vast majority of the non-strabismic are hyperopic has nothing to do with the matter, as these statements ignore the true causes of strabismus, and the infinitely varying degrees of resistance to morbid stimuli. Everybody has repeatedly disobeyed the laws of hygiene in diet, and yet but few have dyspepsia. There are tuberculosis bacilli in all our lungs, but most of us have not tuberculosis. As to emmetropia in heterophoria and strabismus, I have never seen a case, and I do not believe such a case has ever existed.

3. THE TREATMENT OF HETEROPHORIA.[3]

I have little to add or change in the paper I had the honor to read before you last year, so that repetition of its conclusions seems scarcely necessary. I am still convinced that no operation is necessary in the treatment of these cases. I do not deny that others have had good results from operation, but I have never seen any such results, and one of the many bad results that I have seen seem to me to outweigh a large number of the possible good ones. I have never had a case of exophoria that was not curable or in which all symptoms were not relieved by thorough-going prism-gymnatsics. I have had many cases of exophoria running as high as from 20 degrees to 30 degrees (which means exotropia when the internal recti are not intensely innervated), reduced by gymnastics to normal balance, or if not entirely orthophoric, given an adduction power equal to all demands. Sometimes the exophoria has been combined with hypertropia, the latter condition disappearing with cure of the exophoria. Case 5701 was also complicated by incurable Bright's disease, and yet a hypertropia of 8 degrees and exophoria of 7 degrees both disappeared under the exercises. It also happens that high degrees of exophoria-exotropia. or the reverse, require no treatment, or the patients will submit to none. Case 3484 has 18 degrees of exophoria and not a particle of resultant discomfort. I have a patient, a literary worker, with 20 degrees of esophoria, without a symptom of ocular or reflex trouble. Case 1925 has a hypertropia of over 12 degrees, due to chronic lead poisoning, and although he has 20/20 each eye he has not a symptom of which he complains. Case 4191 has 7 degrees exophoria and no symptoms so long as her ametropic glasses are worn. But she has 120 degrees of cultivated adduction power. Case 4617 had an esophoria-esotropia of about 18 degrees which it took 2 years of gymnastic training to reduce to normality, i. e., to esophoria of 2 degrees or 3 degrees. It is unnecessary to add that in a considerable number of cases by correction of ametropia alone, the heterophoria disappears in time, providing the correction is such as to help nature in her spontaneous normalization of equilibrium. Case 3535, for instance, had 15 degrees of esophoria, which in 4 years became normal. In hyperphoria-hypertropia, partial correction, reduced as normality is approached, is required to be added to the ametropic correction. Case 3681 had 15 degrees of hypertropia, and for years avoided operation at the cost of intense suffering. Correction of his ametropia and 6 degrees prisms fused in his lenses, gave him absolute relief.

3. Heterophoria of high degree is not only potential, but, when the eye is at rest, actual heterotropia; therefore, we must describe such cases as exophoria-exotropia. hyperphoria-hypertropia, etc.

4. THE TREATMENT OF AMBLYOPIA.

So far as essentials go I also have nothing of importance to add to a paper[4] on "Amblyopiatrics," read before the Philadelphia County Medical Society ten years ago. As the reprint of this paper is out of print, and as many may not have noticed this paper or not have it at hand, I herewith reproduce selections from it:

That no name exists for the therapeutics of amblyopia in the cases in which the defect is ascribed to "disuse," leads to the astonishing fact that the desire or the attempt to cure amblyopia does not exist on the part of ophthalmologists. If a child with one weak and deformed leg is brought to the orthopedic surgeon, he does not say, "Oh, well, the child has one good leg, let it go on with that alone." If a finger or hand is injured, does a surgeon ignore its needs and congratulate himself and the patient that the rest of the fingers or the hand is all right? But it is a literal truth that an argamblyopic eye (i. e., one amblyopic from disuse), brought to the oculist is dismissed without care and without attempt at cure. In no text-book with which I am acquainted are either principles or rules laid down to govern the treatment, and no hint is given that any treatment is desirable. Not only so, but positive instructions are laid down that, carried out, prevent the weakened eye from ever regaining its lost power. It is as if the surgeon should say of a lame leg: "Strap it up out of the way; it can't work with the other, or as well as the other; let it go." Listen to this extract from the latest text-book on ophthalmology, fresh from the press.

"IN ANISOMETROPIA WE GIVE THE SAME GLASSES FOR BOTH EYES, OR CORRECT ONLY ONE EYE AND PLACE A PLANE GLASS BEFORE THE OTHER.—FUCHS, TEXT-BOOK ON OPHTHALMOLOGY."

I set this sentence out in capital letters, as displaying as much ophthalmologic error and therapeutic sin as could easily be gathered into so many words. Another popular treatise puts it in this way: "For the class of patients whose ocular discrepancies (anisometropia) are so great that they always use only one eye, nothing is to be done save to aid as perfectly as possible the working member in case it needs assistance. The other is to be left to purely ornamental functions."

Any number of such quotations could be added were it necessary to show that the established conviction and practice of the ophthalmologic profession is not only to completely ignore the need and the duty of treatment of argamblyopia, but even to so further handicap eyes thus afflicted by measures of anti-therapeutics as to render recovery impossible, and even to increase the defect.

In square and absolute opposition to this I contend that every amblyopic eye is a sick eye, and that it is a physician's first duty to cure, whether it be eyes, or legs, or bodies.

Our impotent willingness to permit such a lazy method of non-treatment is a distinct reproach and discredit to us. It is simply untrue that patients with anisometropia will permit a proper and helpful correction of each eye. In some 2500 cases occurring in private practice I have found none such except two or three who have simple myopia in one eye and approximate emmetropia in the other. But for obvious reasons,

4. Published in the Medical News, Dec. 31, 1892.

in such cases there is no amblyopia, and they are, therefore, out of the count. Of course, correction of anisometropia may be inconvenient and even uncomfortable to the patient for a short time, but could one expect the abnormal habits and weakened organs of a lifetime to resume normality in a few days? Do orthopedic surgeons thus treat the consequences of spinal curvature or talipes? Instead of the supine let-alone policy we should seek to save and to heal and to strengthen. Instead of non-response to treatment and inability of the patient to wear binocular correcting glasses, I have, in fact, been delighted and astonished to witness how soon response comes and how short or non-existent is the period of discomfort. The weakened, almost blinded eye, soon reacts to the spur of kind, intelligent helpfulness, and, as month by month, one watches these eyes improve and gather strength, one feels the pride and pleasure of the true physician in his true work. I have never failed to find such reaction even in the most hopeless cases of argamblyopia.

There is a very suggestive illumination thrown back upon the question of etiology by the practical results of intelligent and persistent therapeutics. When large numbers of amblyopic eyes recover their lost acuteness of vision by means that permit and necessitate their functionalization, the dogmatism of authorities and the negligence of oculists receive a suggestive comment amounting to refutation, both of the theory and of the sadly common resultant practice, that the amblyopia is cerebral or that it is the causal agent of the muscular or ametropic anomaly. Almost without exception, my cases teach me that amblyopia is argamblyopia. (It goes without saying, of course, that amblyopia due to fundus-lesions and media-lesions are out of the count.) And when such improvement of vision follows the removal of the ametropic or heterophoric hindrance it, *ipso facto*, justifies the acceptance of the theory of effect-amblyopia implicit in the word coined.

But whether the one theory or the other be the true one, the therapeutic sin of not attempting to bring back the lost power of these handicapped and half-ruined eyes, is a sin that cries out against us. The number of persons going about, and going on to the age of cataract-possibility, with such eyes, is surprisingly large. Whether with growing practice one sees more patients, or whether such argamblyopic patients, neglected by others, drift into one's hands, one is amazed at the frequency of the fact, and that instead of heroic effort to save, there has usually been pursued a no-policy of the most atrocious and let-alone indifference. Now, this policy of laisser-aller is to me incomprehensible, unethical, anti-medical, and impolitic, and the object of this writing is to protest against it, and to offer proofs that it is in all these ways wrong. "Far from telling me how to save the bad eye, my doctor never suggested that it could or need be saved"—that gives the hint of the impolitic policy. "I now have cataract in my best eye, and the other has been no good for many years"—that should deeply sting the heart of the negligent physician—if he could hear it.

The practice may partially be a conscious or unconscious result of what I believe the false teaching that the amblyopia is cerebral or idiopathic, or is the cause of the co-existent strabismus or insufficiency, or again, of the still more execrable teaching to correct the ametropic defect of one anisometropic eye, leaving the other to go to the dogs.

The functionalization of argamblyopic eyes consists, of course, in three things: 1, the correction of the ametropia; 2, the reinstatement of the muscular balance, if imbalance exists; 3, exercise.

As to the correction of ametropia, there are a number of peculiar difficulties and problems. These each refractionist will overcome and answer according to his teaching, his habits, or his intelligence. Assuredly, no hard-and-fast rule will suffice, nor can such a rule be even approximately formulated. Each case will be a study in itself, requiring the most accurate discrimination of judgment, and the finest delicacy of testing. In an eye of which the neurologic elements and the cerebral centers are certainly weakened and partially atrophied, the failure to hit exactly the right kind, degree, or precise proportion of help required, foredooms at once to failure. The very breath of life in such an eye is trembling between endeavor and renunciation. A shade of over-correction or of under-correction, a slightly misplaced axis of astigmatism, a misplaced or maladjusted spectacle, a touch at the wrong place, the lack of a wee bit of help at the right place—anything except the right thing—smothers the little remaining power of recuperation, and proves a tiny load too great for the tiny forces to lift. We are dealing with infinitesimals, and the keenest and swiftest perception will win where a less subtle discrimination will fail.

It is evident that such eyes must be nursed and encouraged, as it were, into convalescence. Frequent re-testings will be required; frequent adaptions to the changed conditions sure to follow; watchful care if one weak part of the complex system fails to respond or temporarily gives way; constant readjustment of the spectacles following and stimulating the renascent powers; and meeting them with the precise modicum of lessened or increased aid—these, and many such methods of guiding and guarding, must be kept in mind until full health is restored, and the convalescent eye enjoys and shares the labors of its fellow.

In the same way the reëstablishment of muscular coördination, still further complicating the problem, will be brought about according to the peculiarities both of the case and of the physician.

But these questions having been settled, gymnastics will remain as the very heart of the matter and crux of the difficulty. An eye the visual power of which has from disuse fallen to 20/100, let us say, and reduced to only the temporary holding of the image of Jaeger 14 or 18, will not participate in binocular vision, however perfect the image formed on the retina, or however balanced the muscles. It must be exercised and gently forced to function. It is clear that the good eye must be temporarily thrown out of use, and the weakened brother put to work alone. The kind and the amount of exercise will again depend on the retained visual acuteness of the eye to read print, large or small, and the retained power to continue this for a longer or a shorter period of time. Here again appears the necessity on the part of the physician of careful estimation by a trained judgment to give the proper instructions.

But the final success will depend upon the patient's persistence, patience and coöperation. This coöperation will only be certainly gained by making him (or, if a child, his parents) thoroughly understand just what is desired, and the full significance of it all. To him it should be explained in detail and fulness, that exercise only develops function; that as years go by, non-exercise will still further and hopelessly ruin the eye; and that as age approaches, the possibilities of danger to the good eye (always doubled if there be but one) are greatly increased by the liability of cataract, of inflammation, of injury, etc.

The method of monocular gymnastics in these cases will depend upon the interest of the patient, the age, occupation, etc. In children too small to wear glasses, or to wear the blinder willingly, I keep the good eye under continuous mydriasis for weeks, or even for a month or two. I have, during the past year or two, ordered the patient to get a disc of black rubber fitted with a hock, so that it may be hung on the spectacle-lens in front of the good (unclosed) eye. Such discs are supplied by my opticians, who have prepared them in accordance with my request. The patient is to read print of a size that can be easily distinguished, and only so long as signs of positive discomfort of weakness do not appear. Some patients can at first hold the image for but a few seconds. The shorter the necessary duration of such periods the more frequently they should be undertaken. Some patients can read or work with the single eye for an hour or two without trouble. The plan that has proved of most service, and has been productive of the best results, is to use the "blinder" when eating the meals. If living at home, the extra blinder is left at the plate as a reminder, and the practice is excused by friends. It gives an hour or more daily of varied and easy exercise without loss of time or the annoyance of special attention to the matter. I have a patient, a jeweler,

who works at his bench with his blinder, in all one or two hours a day, and whose power and vision have been greatly improved thereby.

A certain proportion of cases do not report; a few get tired, or are indifferent to the matter. The following cases illustrative of the method and of its results may be cited:

CASE 1.—Mrs. H., 19 years of age, has had severe and continuous headache from early childhood, with gastric trouble, malnutrition, etc. Natural vision is R. 20/20; L. 10/200. Mydriatic refraction =

R.—sph. 0.25⌒+cyl. 0.50 ax. 90°=20/20+.
L.+sph. 2.50⌒—cyl. 5.50 ax. 180°=20/40.

With muscular balance.

After the return of the accommodation, and with the proper correcting glass, the left eye could read only Jaeger 14 at 12 inches.

Monocular exercise was ordered. In three months all headache had disappeared, the distant vision of the left eye, both at near and distant range, equaling that of the right eye.

CASE 2.—Miss M., aged 20, had the following defect:

R.+sph. 0.75⌒+cyl. 0.75 ax. 1.25°=20/50.
L.+sph. 0.50⌒+cyl. 3.50 ax. 1.15°=20/100.

Careful instruction as to ocular gymnastics has improved the vision in four months to R. 20/20; L. 20/50+.

CASE 3.—Mrs. R., aged 51, had the following refractive error:

R. 20/30+sph. 0.37=20/20.
L. 10/200+sph. 3.00⌒+cyl. 1.00 ax. 90°=20/200.

With the left eye the patient could read only the large-print "Scripture leaflets" hung in rooms—the only thing I could get for her of sufficiently large-sized letters with which to exercise the eye. One year later, after more or less exercise of this eye alone, she was able to read Jaeger 12, slowly.

CASE 4.—Miss R., aged 25, under homatropin was found to have the following error of refraction:

R.—sph. 3.00⌒—cyl. 1.50 ax. 150°=20/70+.
L.—sph. 7.00⌒—cyl. 0.50 ax. 180°=20/70.

Eight months later the vision was: R. 20/20; L. 20/40.

CASE 5.—Mrs. K., aged 45, had 20/40 vision in the right eye, with a compound myopic astigmatism twice as great in this eye as in the left. There were 6 degrees of exophoria. Proper correction of all ametropia and insufficiency with monocular exercise relieved the life-long sick-headache, etc., and in 5 months the vision of the left was brought to the normal.

CASE 6.—Miss S., 35 years of age, had had frontal headaches all her life, and, with much near-work ptosis of the left lid. Refraction was:

R.—sph. 1.50⌒+cyl. 5.00 ax. 105°=20/70.
L.+cyl. 1.25 ax. 80°=20/20.

Five months later, after the monocular course of gymnastics, all headaches and ptosis had disappeared, and the vision of the right eye was 20/20.

CASE 7.—Mr. P., 25 years of age, was found to have the following refraction:

R.—sph. 0.25⌒+cyl. 1.00 ax. 125°=20/20.
L.+sph. 0.75⌒+cyl. 3.00 ax. 180°=20/70.

He has been wearing a plane glass. After mydriasis had passed off he could, with proper correction, barely read with the defective eye Jaeger 10. Three months later he read Jaeger 4, with ease.

CASE 8.—Miss M., 46 years of age, gave a history of a lifetime of sick-headaches, once or twice a week with anorexia, anemia, etc. She was wearing:

R.—sph. 3.00⌒—cyl. 2.25 ax. 180°.
L.+sph. 0.75.

This had been given her for constant use, although her age was 46, and she was employed at writing all day. I found that her refraction was:

R.—sph. 2.50⌒—cyl. 5.00 ax. 165°=20/70.
L.+sph. 0.37=20/20.

Hyperphoria of 3°.

A few months after correcting the ametropia, presbyopia, and hyperphoria, with monocular exercise of the right, the vision in that eye had improved to 20/40, and all the reflex symptoms mentioned had disappeared.

CASE 9.—A little girl of 9 was greatly afflicted with night-terrors, somnambulism, headache, anorexia, nervousness, etc. Her refraction was as follows:

R.+sph. 0.75⌒+cyl. 5.00 ax. 100°=20/70.
L.+sph. 1.00⌒+cyl. 5.00 ax. 85°=20/100.

The blinder was ordered for the right eye, with daily exercise of the left alone in reading large print toy-books, in playing, etc. The right eye soon recovered a normal acuity, but it took nearly a year of watchful care and exercise to bring the eye to 20/20?

CASE 10.—Mrs. A. has had constant frontal headache for the past 5 years, culminating in paroxysms of sick-headache every few days. When a girl at school she had "numb spells," etc. I found:

R.+sph. 3.50⌒+cyl. 1.00° ax. 150°=20/100.
L.+sph. 1.00⌒+cyl. 0.75° ax. 150°=20/20.

Persistent exercise with the blinder brought progressive increase of visual acuteness and power. The reading ability descended through all the sizes of letters from Jaeger 18 to Jaeger 8, and from ability to hold the image for only a few seconds, until now, seven months since beginning, she can read ordinary print with the right eye for a half-hour, and distant vision at the last visit was 20/70, with improvement still in progress. The headache, anorexia, ill-health, etc., have entirely disappeared.

CASE 11.—A girl of 10 years of age, anemic, with ocular and forehead-pain, was refracted on April 16, 1902:

R. 20/70+sph. 1.00⌒+cyl. 0.25 ax. 90°=20/30.
L. 20/200+sph. 1.25⌒+cyl. 0.37 ax. 90°=20/70.

With the prescribed exercise of the left eye, the vision in six months had reached 20/30, and will doubtless soon be equal to that of the other.

CASE 12.—A lad of 17, with a high degree of compound hyperopic astigmatism in the right, and 20/70 vision, while the left had perfect vision, and a low degree of the same refractive error. The blinder treatment has brought vision in the right eye to 20/20? in six months.

CASE 13.—This case is an instructive one. A gentleman of 46 years has had severe ocular trouble and headache all his life, but for the past 12 years these and other symptoms have been excessive, and he has reason, if he but knew it, to preach some useful lessons to ophthalmic specialists. One of these gentlemen, who prides himself on prescribing by ophthalmoscopic examination alone, fitted him with glasses 12 years ago, but with the most heroic endeavor he could not wear them. Vertigo was at this time, and for 6 years, so pronounced that it was a source of daily wretchedness. Then came the turn of the graduated tenotomist, but the vertigo was worse and mental confusion became so great that pronounced cerebral disease was diagnosed by physicians. He feared insanity, and was so haunted by suicidal mania that he had to take daily precautions to obviate the thought and the circumstances that might lead to its execution. This went on for years. A firm will has kept the upper hand through all these years. The patient describes his symptoms as "panic-feelings and palpitation of the brain," with extreme nervousness and nausea. The headache has been less of late. Lastly, a famous oculist told him to go to an optician and get whatever glasses should be given to him there. These he has been wearing for reading—what little he can do. They are simple plus spherical 3.00 D. lenses, the same for each eye! After hours of careful work I find his true refraction to be:

R.+sph. 2.00⌒+cyl. 2.00 ax. 40°=20/40.
L.+sph. 1.50⌒+cyl. 1.00 ax. 90°=20/30+.

With the right eye alone he can hold an image of Jaeger 10 but a second or two, the letters then "jump" and fade.

When one thinks of a lifetime during which the poor eyes and the cerebral centers of the last case, for example, have struggled and begged for a bit of intelligent help; when one analyzes the peculiar defect that would not let either eye renounce vision; when one considers the fact that a strong healthy masculine will has fought against this frightful evil,

and preserved its defective mechanism so well; or what would have been the result in a woman—when one ponders over these and many such related things, one is pained with sympathy, and indignant at the failure to help.

The age of the patient, of course, has a great deal to do with the success of treatment in all these cases, and one fact stands out with clearness; the younger the age at which the treatment is begun the better. Reaction is prompt in the young, and every added year of failure, and wrench, and wreck, makes the task ever more difficult.

I have had something like fifty of these cases, and many had previously passed through the hands of others unbenefited. It would, therefore, appear that the duty to "fight for a bad eye" is at present not at all recognized. Every such case is pathetic with dumb pleading for a simple bit of help that it should be at once our highest duty and privilege to give. Moreover, to prevent disease is even greater than to cure it, and if taken early in life in no branch of medicine is intelligent prevention of intolerable evil so possible and so beautifully resultful as in painstaking and skilled refraction-work.

To the foregoing suggestions I might add that in my practice I have not found it necessary or to any considerable extent helpful to add the use of stereoscopes, the reflecting stereoscope, the amblyoscope or the heteroscope,[5] bar reading, the fusion tubes of Priestley Smith, etc. The stereoscope may be of temporary use in some cases. Some of these contrivances I have not even tried. The reflecting stereoscope of Worth is the most promising and I judge may be of great service in some cases. Most of them, however, are unnecessary when errors of refraction are accurately corrected, and when the thorough-going methods suggested are carried out with real seriousness, patience and insistence. I do not use the pad or bandage, as the sound eye should be kept open; a silk or velvet blinder is advisable attached to the spectacle lens or frame, of an extent sufficient to prevent vision with the covered eye.

5. THE TREATMENT OF PHYSIOLOGICALLY CURABLE STRABISMUS.

This treatment is by means of prophylaxis, by correction of the ametropia that prevents binocular vision, by reinstating the normal coördinating innervation of the muscles and by the treatment of amblyopia. The crux of the matter is in the decision as to the cases which are curable by nonoperative methods, and those in which operation must be performed. The fatal desire to get to work at tendon-tinkering leads to such horrible expressions as these: "After a trial by glasses we must, if unsuccessful by this method, advise operation." "Non-operative treatment may be persisted in for a month, or even two months." "In a small proportion of cases cure may be brought about without operation." Instead of which I would advise that several years be tried, a dozen or a score perhaps. Even the mutilations and deformities produced by tenotomomania may be corrected in time by sane medical methods.

6. THE TREATMENT OF ALTERNATING STRABISMUS.

When taken early enough in life alternating strabismus may be cured by the methods described, but there are varieties of the affection which it is not very desirable to cure, especially if the habit is chronic. Many cases of alternating strabismus have binocular vision, but it is not synchronous. I remember, for instance, a few such cases in adults, with simple myopia in one eye and approximate emmetropia or simple hyperopia in the other, the myopic eye, of course, used alone for near, the hyperopic having lost accommodation and used only for distance. As 99 per cent. of cases are astigmatic, it is extremely rare to find that no glasses are required, and, moreover, presbyopia will surely demand them later. In other cases although not anisometropic and without the power of synchronous fusion the mind has caught the trick of psychic suppression of one image and preserved the acuity of both eyes with only slight and not deforming strabismus by alternation of fixation. No operation would have any good effect.

7. THE TREATMENT OF ANOMALOUS CASES.

Despite our rich nomenclature there are cases that are not accurately or fully nameable or describable, except individually. Dr. Charles Herman Thomas[6] describes three cases of strabismus with anomalous diplopia, caused by an original and acquired fixation spot in each eye, the normal macula being used in monocular fixation, the other in binocular fixation. I have had similar cases, one in particular, in which choroiditis had destroyed the macular region in one eye and a new macula produced a pseudostrabismus. In another two new maculas had been formed, and there was great increase of visual acuity with two heavy prisms, bases up, which deflected the cones of light more accurately upon the two new maculas. I have noted among my cases a number of instances of what might be called intermittent strabismus, the strabismic eye becoming simply heterophoric for awhile and again becoming strabismic without apparent cause. These in chronic cases in adults seem to differ from those common in children, in which strabismus comes on only with great excitement, loss of health or great fatigue. Thus in Case 5552 the left eye has been convergent from about the age of about one year. At 9 I found each eye still retained 20/40 vision. For a year there was intermittent strabismus, but within one year there was recovery of 20/20 vision in each eye and constant binocular vision.

There is a puzzling class of cases which show divergent strabismus, or the convergent variety, with one set of tests but the reverse defect with another. The eye, e. g., is highly divergent under cover, but as highly convergent with the Maddox rod or prism diplopia. Case 6316, for example, had this anomaly. She could use both eyes together or either separately and at will. There were no symptoms.

Another class of most troublesome cases is characterized by strabismus only in certain positions of the head. In Case 6,605 the patient had nausea in looking downward owing to paresis of the inferior rectus of one eye. There was hyperphoria of 5 degrees in looking at the book or sewing in the lap; 3°B.D.L. in the near lenses of her bifocals gave complete relief.

Among suggestive anomalies may be noticed the case of my friend, Dr. Pyle,[7] in which a blunt hook had torn through the lower rectus of one eye, the conjunctiva, etc., of the entire structures beneath the eyeball from the inner to the outer canthus, part of the inferior rectus being found upon the hook after the accident. Perfect binocular motion and vision were finally reinstated. In another unreported case Dr. Pyle tells me that a patient continued to use prism-gymnastics for exophoria beyond orders, and when she returned her exophoria of 12 degrees had become esophoria of 20 de-

5. For the formation of such barbarisms as these two words the etymologic criminal should have a unique punishment, and in this present world! An ophthalmoscope is an instrument with which to view the eye. An *amblyoscope* can mean nothing else than an instrument for viewing a dull or blunt (thing).—The father of the word may have meant an instrument for viewing amblyopia or dulled vision. How would it look? The *heteroscope*, of course, means an instrument for viewing another or different (thing). Some one should invent a *psychoamblyoscope*, an instrument for observing psychic amblyopia.

6. Am. Oph. Soc., 1894.

7. JOURNAL A. M. A., March 9, 1901.

grees. This change of 32 degrees merely by adduction exercises will doubtless not be believed by the makers of surgical instruments. But it is well to curb the ambitions of these commercial gentlemen or otherwise they might be advocating new and wondrous tenotomes for rectifying an erratic motion of the earth by operation on the muscles of the solar system!

Cases have sometimes shown a positive strabismus of one kind upon one day which disappeared or was reversed at another time; others with perfect vision of both eyes and yet with a suppression of the image of the nonfixing strabismic eye. I have had at least one instance, Case 4,983, of what I have called "strabismus hemianopsia," i. e., the loss of function of one-half of the retina due to strabismus, with consequent displacement of the macula, which so accurately simulated hemianopsia of cerebral origin that without knowledge of the history the perimetric chart would be held as evidence of it. The hemianopsia disappeared by training in one year. Such cases as these teach us many lessons whether our therapeutics aid much or little. The treatment of these anomalous cases will, of course, depend on the unclassifiable conditions present plus the intelligence and conscience of the physician. No rules can be drawn. The formation of new maculas is itself an illustration of what nature will do and seek to do if we will but give her time and freedom from our impertinence, to work out her slow, wise and beautiful methods of repair.

8. THE TREATMENT OF INCURABLE CASES.

Incurable cases are of three classes: 1, The paralytic, which are beyond the scope of these notes; 2, the chronic cases, due to the neglect of parents or of the "ophthalmic surgeon," the period of possible cure having passed and nature's long appeal for help ignored, with the result that the eye is ruined. A fairly accurate law in these cases is that the preserved remnants of vision and innervation will show signs of reaction and revivification to natural treatment so long as the eye may be straightened non-surgically. When the eye can be of no use nature will not seek to straighten it. Moreover, as a rule, she will not allow it to be straightened even by the best surgical means. My advice to such patients is to leave such an eye untouched. Usually, despite whatever advice may be given, the patient has fully and wisely determined not to risk operation for purely cosmetic reasons. Such an eye is a fitting memorial of professional neglect, which as a standing negative advertisement we should, indeed, seek to hide under a blinder. 3. The worst and most hopeless of incurable cases of strabismus are those which are the result of unsuccessful operation for heterophoria or strabismus. There are many such, most of them coming down from the past generation when unart for unart's sake was the rule, and the result too often being increased hideousness for the sake of deformity. Many of these wretched people must have been operated upon for heterophoria, because they have irritating diplopia, the result of unextinguished vision in the deviating eye. Those of the latter class may sometimes be helped or cured by nonsurgical methods, but their bitterness of heart usually makes them refuse all further offers of help. Surgery they will not listen to, and I have yet to see operation for the cure of the evil results of surgical operation do any good. It usually aggravates the evil, just as cure of heterophoria is vastly more difficult after there has been operation. As an instance, Case 6267 was operated upon for strabismus at 4 and again at 7. When the patient came to me some years later there was diplopia, headache, dizziness, etc. Fusion of the images was impossible. (The impossibility of fusion of the images when brought by testing closely to each other indicates that nature will never consent to their fusion. It is better in such cases to let them be wide apart. The closer their approximation without fusion the greater the danger of accident to the patient.) By effort either eye could be used for near or for distance. The right was preferably used for near and the left for distant vision. Correction of refraction was the only therapeutic measure possible, but this gave great relief of the subjective symptoms. Case 4,077 had been operated upon for hyperphoria without correction of the astigmatism—a sin which the god of medicine will never forgive. The operation, as is so common, was successful at first, but there soon reappeared 10° of esophoria and 7° of hypertropia. Gymnastic training and partial correction of the hypertropia extinguished the lateral imbalance and reduced the vertical to 3° with binocular vision and satisfaction.

I do not deny that cases of strabismus have been "cured" by operation, nor do I deny that the vast majority of such operations are "successful." I am unfortunate in that I have seen but one case—the eye, however, absolutely blind.

What could induce an observant man to suppose that partial cutting of the tendon of an ocular muscle would permanently lengthen it? Is it so even with a cord and suspended weight? Is there a scrap of evidence that cut from its attachment on the globe a tendon will grow upon a new unabraded, uninjured surface? The history of every case I have watched shows the slow but certain reattachment at the old insertion, and finally the same length and strength and tension as in the original condition. All healing processes demonstrate their aim to be to replace the old condition as near as possible after the traumatism, even to the regrowth of excised tissue. The immediate effect of the tenotomy has nothing to do with the matter. The sole question is, what is the condition a year afterward?

The fallacy as to "cure" and "success" usually lies in the choice of the time when these estimates are made. If immediately after the operation the words have no meaning. The patient must use his eyes in after years and all his life. If the cause of the strabismus was not in the lengths or strengths or insertions of the muscles, but if these lengths, strengths and insertions were the results of other causes, surgery was absurd and there was no cure. Hence, in a few months or a year all the old troubles return after needless surgical intervention.

Eight or ten years ago I also was in "Arcadia," the surgical Arcadia, where I undertook operation for heterophoria and strabismus. But I found that my awkwardness, or perhaps some other causes, soon made me sure that I was in another, a far warmer and a much less happy country. I supposed for years that my failures were due to my poor surgery, for I had heard all my Arcadian surgical brethren vowing they were most successful and happy. Then the results of their work began to appear in my office, and I again moved back into Arcadia. But it was an individual Arcadia, and for awhile I was very lonely. With the exception of the one case I have mentioned I have never seen the results of an operation in heterophoria or strabismus of which I should be proud to say, *I did it!* If there were any real and permanent effect, there was either immobility, the stare of remonstrance or of death, the proptosis or exophthalmos, the wabbling and lack of control, or the fixed strabismus—one or several of these symptoms combined—and these are things that make one turn attention

to physiologic rather than surgical methods, to prevention rather than cure. As to treatment, when these patients do ask for help we dare promise them nothing, and we shall in the worse cases usually end by advising a ground glass lens that will as little as possible attract the attention of others and hide from view an unseeing or an unsightly eye.

DISCUSSION

ON PAPERS OF DRS. GARDINER, AYRES, JACKSON AND GOULD.*

DR. S. D. RISLEY, Philadelphia—I have a profound conviction that if I had twenty minutes instead of ten I should leave this subject in the minds of my hearers very much where I find it. If it were not so serious a subject to our patients who are suffering, I should feel like treating it humorously.

When I compare the papers of Drs. Ayres and Gardiner with those of Drs. Gould and Savage, presented last year at St. Paul, I can but think that the experience of another year has taught us all to pursue a more conservative course, and that, as years go by, we will all become more and more conservative when it comes to operation on the ocular muscles. I wish some member of the Section might gather up the threads of clinical experience and, Newton like, establish some law from all these truths and half truths which come to us in our daily experience, so that we might know just what to do in every case. I have no hope, however, that we shall ever be able to establish a law that will guide us in the abnormalities of ocular balance. Each case must be studied carefully and separately, and treated with the utmost care and judgment. Here as in all other situations in medicine the doctor who succeeds best is he who has the widest knowledge and best judgment.

I am sure that there is a large group of patients whose conditions are well illustrated in Dr. Ayres' paper, in which the ocular symptoms are reflexes of other conditions. I have seen many illustrations. For example: Some years ago a lady came to my office with some error of refraction and I prescribed glasses for her without relieving her symptoms. I then found a constantly varying anomaly of ocular balance; esophoria at one visit and hyperphoria at the next, never twice the same. I then sent her for an examination for pelvic trouble, and her physician wrote me that there was nothing wrong. Her employment required her to stand many hours daily. I then requested him to support her uterus with a pessary for a few days. He did so and all her ocular symptoms promptly disappeared and she was able to abandon the glasses, except for reading. The case of this woman is an illustration of one class of patients supporting the contention of Dr. Ayres' paper, but, on the other hand, I believe that a large number of our patients have absolute abnormalities of ocular balance in no sense reflex in character, but due to local anatomical conditions. It is rare, indeed, to find a model skull. Distortions in form are very frequent and of such a character as to modify the shape of the bony orbit. Now, any circumstance which will change the shape, size and inclination of the walls, or the floor and roof of the orbit is likely not only to influence the shape of the eyeball, giving rise to astigmatism with asymmetrical meridians, hypermetropia, etc., but also to influence the length and direction, the origin and insertion of one or more of the complex group of extraocular muscles. I believe this to be the cause of a large group of the absolute abnormalities of ocular balance. To reduce them in their almost infinite variety to any semblance of a law seems to me a well-nigh hopeless task. On the contrary, added study but serves to increase our comprehension of their complexity.

DR. G. C. SAVAGE, Nashville, Tenn.—In connection with Dr. Gould's paper allow me to say that there are two requisites in all surgery: first, there must be a correct understanding of the condition; and, second, there must be a clear head to guide and a steady hand to execute. When these two conditions are met, surgery is not the despair of medicine. Again, if Dr. Gould's argument that the length, size and insertion of muscles play no part in the causation of either heterotropia or heterophoria, it would be as impossible for a tenotomy to do harm as he claims it impossible for any operation on a muscle to do good; for a tenotomy only sets the muscle insertion back, and the nervous impulse could soon make this muscle do as good work as if it had never been cut.

With these preliminary remarks I shall proceed to the discussion of the principles controlling both the operative and non-operative treatment of squint. There are two muscle states: first, the non-nervous tension; second, the nervous tension. The non-nervous tension, or tonicity, of a muscle is determined by its origin, its course, its size, its length, and its attachment to the globe. The nervous tension, or contractility, of a muscle is the power that leads or turns the eye. If the non-nervous tension of a pair of muscles, or of two pairs that are associated, is ideal, the nervous tension of these muscles will be normal. Every true muscle error, be it squint or heterophoria, is an error of tonicity or non-nervous tension, and the muscle itself should be treated, when possible, by non-surgical means, otherwise by well-directed surgery. The object of all treatment of the ocular muscles is to so regulate their non-nervous tension that there may be an ideal response to a normal nerve impulse. A pseudo-muscle error is due to abnormal nervous tension of one muscle of a pair. It is always caused by a focal error and is always cured by lenses that correct the focal error.

DR. NELSON M. BLACK, Milwaukee—In regard to the non-operative treatment of squint I wish to speak of a method advanced by one of our English brethren, Mr. Claud Worth of London; as to its treatment from the etiological standpoint that the potential causative factor is the non-development of the fusion center. His method of treatment is at first entirely non-operative, the exact degree of deviation is first obtained, then refraction under mydriasis, after placing the proper glasses before the child's eyes, binocular vision is accomplished and the fusion center exercised and stimulated by an ingenious instrument which he has devised, called the amblyoscope. The instrument is made up of two halves composed of a long and short tube joined at an angle of 120 degrees, with a mirror at the cord subtending this angle; at the distal end of the long tube is placed an object glass, at the proximal end of the short tube is a lens whose focal distance is equal to the length of the joined tubes; the two halves are hinged together at the proximal end of the short tubes; it can be adjusted for a convergence of 60 degrees, and a divergence of 30. A description of the instrument will be found in THE JOURNAL A. M. A., Vol. XXXVIII, No. 21, p. 1363. He places the child before the amblyoscope and explains what is to be seen, for instance, a bird and cage, and tells the child he is to get the bird in the cage. The bird is placed in the tube before the fixing eye and the cage before the deviating eye; as the child looks into the instrument he sees only the bird. By that time the child has probably lost the picture before the fixing eye and the intensity of illumination is changed until both objects are seen, the two halves of the instrument then moved back and fourth until the child has the bird in the cage. The exercise stimulates the fusion center while the child is squinting. Worth finds in the majority of cases that the divergence or convergence of the visual axes greatly lessens after a few exercises with the amblyoscope. During the intervals between the use of the instrument he stimulates the vision of the deviating eye to bring back fixation by instilling a mydriatic in the fixing eye which precludes its near use. He instills a mydriatic each morning for two weeks in the fixing eye, measures the degrees of deviation, and then continues with the amblyoscope until he gets parallelism of the visual axes or until such time as there is no decrease in the degree of deviation, and then resorts to operative measures. The fusion center all this time having been stimulated and exercised as well as binocular vision having been accomplished by means of the amblyoscope. The desire for fusion will be so great that the patient on having the visual axes brought approximately parallel will fuse immediately and the visual axes held parallel by this developed fusion faculty.

DR. MARK D. STEVENSON, Akron, Ohio—In ametropia, correcting lenses are chiefly demanded because of the more or less constant use of the eyes for close work. The static and dynamic refraction may be determined, but, unfortunately, this is not so true of the static and dynamic condition of the ocular mus-

* The papers of Drs. Gardiner and Ayres appeared in THE JOURNAL, October 25.

cles. The eye used for close work must not only accommodate, but also turn toward its fellow, and this latter fact necessitates a careful study of the ocular muscles for near work which has so often been neglected, studying only their condition for the distance.

I believe the greatest factor in the production of squint to be a lack of fusion power, due to an untrained and poorly developed cortical center, which controls binocular vision, and that the various other causes usually mentioned are contributary to it, and are generally operative if at all, because of the presence of this defect. Alternating squint where the fusion power must be so very defective, since other conditions are favorable to binocular vision, is necessarily the most difficult to cure. When the fusion sense is so weak that it will not control two otherwise good eyes, with good vision, etc., it will certainly be difficult to develop. I have used Mr. Worth's amblyoscope with marked success in training the fusion faculty, and have watched the splendid results achieved by its inventor in London.

The refraction of the eyes should be determined if the patient's age be eight or nine months or over, and if strong correcting lenses are needed they should be worn even at that early age. If the patient be too young to train the fusion sense, or for operation, it is well to preserve the vision of the worse eye (which is otherwise often lost from disuse) by instilling a weak solution of atropin in the better eye, two weeks in each month. With the correcting lenses the better eye will be used for the distant, and often the worse eye for near objects, thus preserving the sight of each until something more can be done. It is bad theory and worse practice to put atropin in the squinting eye, thus making the already poor vision of that eye worse, and inviting amblyopia exanopsia, thus certainly insuring a poor result.

DR. FRANCIS VALK, New York City—The papers remind me of the days when I first began the study of medicine; when Professor Thompson told us that pneumonia was a local disease and some one else said it was a systemic disease, and when we asked the Professor about it he would say, "Well, you will have to study it up for yourselves." And so it is with this problem, we must each study it according to the cases that come to our office or in our clinics.

I hardly think Dr. Gould would condemn a pretty little girl to go on for years with one eye turned in with the hope that some day by exercise it would turn out again. It would not be fair.

I think Dr. Risley has struck the keynote of the whole thing and that is that there are anatomic conditions that produce squint and that we must look to their correction as well as to the correction of other conditions. I have seen convergent squint coming on at, or immediately after, birth. Should we commence to treat them when they are only one week old? Follow them until they get to be four or five years old and you will find one eye amblyopic and the other good. On the other hand, we may have a child born with one eye amblyopic and yet it never squints. In these other cases where you find amblyopia without squint you find the power of the externi exactly the same as the interni. Suppose we have then a case with congenital amblyopia, you will waste time and money if you attempt to cure it by any other means than operation.

And as to the operation: Dr. Gould has based his ideas on tenotomy, but tenotomies are going out of fashion; the first thing we do is to strengthen the weak muscle, and if you strengthen it first and then do a carefully performed tenotomy you will cure the squint. Strengthen the externi by shortening and then do a tenotomy on the interni. We find another class of cases in which vision is active in one eye and down to 20/70 or 20/50 in the other, with squint. If you can strengthen your field of vision by putting on glasses you may cure it; if you can not, then strengthen your externi and do a tenotomy on the interni, if needed.

DR. RISLEY—It seems to me that much of the confusion which clusters about the subject of ocular imbalance arises because we lose sight of primary conditions. We should remember that binocular vision is largely a matter of experience. The young infant cries when the light is turned out and is content when it is turned on again. It does not know which way to look for the light, and learns to do so only by experience. So it is with binocular vision. We learn it as we do other things in life. I believe that in a great number of cases in which comfortable binocular vision is not acquired is because of anatomic abnormalities in the skull or from faulty attachment of the muscles to the globe. A certain number of children are born who become strabismic because of these faulty anatomic conditions, and under no circumstances can they have parallel visual axes and binocular vision. Others, I am convinced, have binocular vision even without parallel visual axes, having acquired a factitious macula which they use in the converging eye instead of the normally placed macula. In other cases the strabismus is due to an absolute scotoma in the deviating eye. We must remember that binocular vision is a matter of experience and when not attained there must be some underlying cause for failure which should be diligently sought for. I have no doubt that many imprudent tenotomies have been done, but this does not justify the statement that we should never operate. That many cases can be cured without operation is a matter of daily experience, but, on the other hand, there is a certain number of patients with defective ocular balance due to congenital anatomic anomalies, or to macular defects for whom binocular single vision can not be secured with or without operation. Experience has taught us that some of the most brilliant results follow properly performed tenotomies. I could bring forward the carefully recorded history of many cases which have been lifted from a state of invalidism to health and comfort by tenotomy of an ocular muscle after all other means had been exhausted. The cases alluded to by Dr. Gould are cases of failure. He simply does not see the cases which have been relieved. It is only the failures which wander about from one consulting room to another.

DR. GARDINER, in closing—When Dr. Gould was in the operative Arcadia I was in the non-operative Arcadia for the treatment of strabismus. At the meeting of this Section in Newport in 1889, I read a paper on the non-operative treatment of strabismus convergens and there gave the result of 25 cases of non-operative treatment. I agree with the Doctor to this extent, take the baby young enough and good results can be had. Three cases that were then reported as under observation I had come to my office during the last two or three days and am glad to be able to report them now after thirteen years. Two of them have binocular vision, one 2 degrees, and the other 4 degrees of esophoria; both perfectly comfortable. The other improved, but had to be tenotomized, and is still under observation. I have had this patient under observation since she was three years old. There are certainly cases where nothing will do good but an operation and where an operation will do good.

DR. AYRES, in closing—In regard to the new-born babies there is generally a wabbling of the eyes noticed in all of them for the first three or four weeks and sometimes one is very much afraid that they are going to be cross-eyed. But as the child grows this unsteadiness of the ocular muscles disappears.

DR. JACKSON, in closing—It is very easy to speak of the elastic tension of the muscle and the tension under innervation; and when you have the two terms to put them up as two separate and distinct things, and talk of them that way. But if you take the same muscles from day to day, and week to week, these are not sharply separated. The elasticity of a given day may depend on the innervation of preceding weeks. We see an example of that in the blacksmith's arm. It is true of the eye muscles as well as those of the general body. They can vary in their length and in their strength. We have evidence that the influence of the muscles on the eyeball is dependent on the nervous impulse that comes to them. I do not refer simply to the condition of nerve centers, but to the innervation of the muscles in connection with the use of the eyes. As regards the anatomic variations, I think there are cases where this influences the development of strabismus, but such cases are exceptional. I think that there is no more reason to suppose that an excessive action of the internal rectus muscle goes along with some abnormality in the shape of the bones of the orbit, than to suppose that the thickness of the muscle on the blacksmith's arm depends on the shape of his humerus.

New Instruments.

NEW INSTRUMENTS FOR THE REMOVAL OF THE FAUCIAL TONSILS.

CHARLES M. ROBERTSON, M.D.
PROFESSOR OF NOSE AND THROAT, CHICAGO POLICLINIC.
CHICAGO.

The methods of tonsillotomy that have been in use in the past having proven unsatisfactory and incomplete, it seems an opportune time to present, not a new operation, but a new method of operation. We are fast coming to realize that enlarged or diseased conditions of the tonsil are a detriment to the economy and nearly all of us agree at the present time that, when a diseased condition of a gland exists, the entire gland should be extirpated.

For the past five or six years it has been my custom to remove the entire tonsil when diseased or chronically enlarged. For this purpose I have devised instruments which make the operation complete. It is almost universally conceded that if any procedure is adopted at all, it is to the end of destroying the gland, whether this be by a shrinking process, by cautery or by operative means. For the first method little is claimed and the only time it is used is when the patient or his friends interfere with our plans. The second method is divided into a variety of procedures, from puncture of the crypts and even burning between the crypts, to complete removal of the gland itself and at times part of the anterior pillar. This form of treatment has some very warm advocates and some very happy

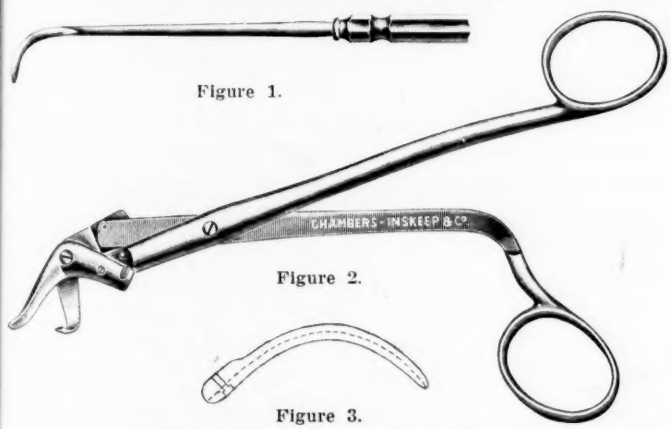

Figure 1.

Figure 2.

Figure 3.

Fig. 1.—The curved knife. Fig. 2.—The scissors. Fig. 3 shows the curvature of the cutting edge and is full size.

results have been attained by its use. Some also prefer the use of the scalpel and think they obtain fine results by the complete dissection of the gland. All of these operations have friends, and it is not with any idea to tear down, but rather with the thought of giving one more method to consider, that I have sought to bring to notice a scissors, which seem, after considerable use, to be superior to all the former methods, both in the completeness of the operation and the ease with which the operation is performed, both for the patient and the surgeon.

I prepare the patient in the usual way, using applications of cocain alternately with full strength solution of adrenalin, sometimes injecting a weak solution of cocain into the tonsil itself, or if the use of cocain is not desired, the tissue may be frozen with ethyl chlorid spray. General anesthesia is seldom required. The pillars of the palate are then separated from the tonsil with the knife shown in Figure 1. This knife is simply a double-edged bistoury curved on the flat and with a dull point. The radius of the curve is 1 cm., and the cutting edge is 2 cm. in length. The instrument in all is 28 cm. long and has an octagonal handle so it may be turned in the fingers easily. It is double-edged, so it serves for either tonsil. In separating the pillars care should be exercised not to destroy the muscular layers of the pillar. After the tonsil is thus separated from the palatal pillars, it is grasped with a fixation forceps and the gland removed with the scissors, cutting from above downward. Great care must be taken to remove all the gland. Unless the operator be observing, a part of the upper portion may be missed. If such be the case it can easily be removed by a subsequent snip of the scissors.

It is not so rapid an operation as tonsillotomy performed by the tonsillotome, but it is far superior, as in the case of operation by the tonsillotome the entire gland can not possibly be removed. In the latter, the operator can remove all or part as he may desire. The right tonsil should be removed while holding the scissors in the left hand, but if the operator be not ambidexterous, it can be done while they are held in the left, although in this position he must work over the grasping forceps. Figure 2 shows the scissors. They are made in two sizes, for adult and children, and are made rights and lefts.

The advantages of the scissors are:

1. They allow of the removal of every part of the gland, or any portion of it, as the operator may choose.
2. They are bent on the long axis so that when fitted into place the handles are horizontal.
3. They are made with a double joint so that the cutting edges can be thrown wide apart, with little movement of the handles, allowing the operation being done in cases where the jaws can not be widely separated.
4. The blades are curved enough to make it unnecessary to turn the scissors on their long axis, in cutting the lower portion of the gland.
5. They enable you to remove small diseased tonsils which are impossible to remove with the tonsillotome.
6. You are enabled to remove the entire gland with no injury to the pillars.
7. There is not the soreness following the operation that is so common in the use of the galvano-cautery, and ear complications are not so liable to occur.

100 State Street.

A NEEDLE EXTRACTOR.

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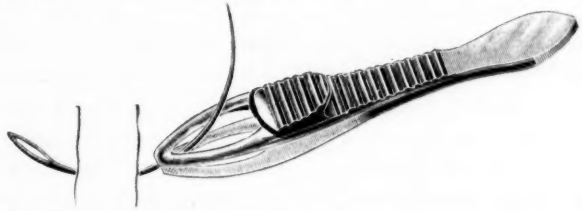
HOUSE PHYSICIAN, PASSAVANT MEMORIAL HOSPITAL.
CHICAGO.

The difficulty of extracting a needle after it has been inserted into dense tissues, especially if threaded with heavy suture material, is one with which every surgeon is familiar. Inasmuch as it is often impossible to let go with the needle holder before getting a hold of the point of the needle with something, one mostly resorts to extract the needle with a pair of hemostatic forceps, or if it is a fine needle a pair of ordinary tissue forceps is used. Neither of these instruments are well adapted for the purpose; the hemostatics are unhandy, and often crush the needle, while the tissue forceps slip and nearly always spoil the point of the needle.



In offering the present needle extractor I have added no distinctly new instrument to the already great number, but have merely tried to modify a pair of heavy tissue forceps to the special use of a needle extractor.

The instrument is a pair of heavy tissue forceps, 4½ inches long, having a large eyehole in the side of each blade through which the point of the needle passes. The tips of the forceps are lined with soft corrugated copper, and on the sides of the blades are placed thumb supporters in order that the instrument may be held more firmly.

Rapid Granulation of Wounds Exposed to Sunlight.—O. Bernhard has been making a practice lately of exposing slowly-healing wounds to intense sunlight. Granulation is visibly promoted and the healing of tuberculous cavities after evacuation has been favorably influenced.—*Corr. f. Schw. Aerz.*

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THE HUXLEY LECTURE ON THE RELATION OF RECENT WORK IN IMMUNITY TO PATHOLOGY.

There are many things connected with the last Huxley lecture at the Charing Cross Hospital Medical School in London, Oct. 1, 1902,[1] that must interest greatly medical men in this country, as well as scientific men in general. As a tribute of admiration "for the great army of scientific workers on the other side of the Atlantic" Professor Welch of Baltimore was invited to deliver the lecture this year, and certainly no better choice could have been made, either from the point of representation of American investigators or from the point of essential and inherent fitness. In his graceful introduction to the lecture Professor Welch speaks modestly of himself as a soldier in the ranks, but his colleagues and his pupils long ago elevated him to the position of acknowledged leadership in scientific medicine in this country; and they are proud to know that called on to follow such great men as Sir Michael Foster, Virchow and Lord Lister, Professor Welch as the fourth Huxley lecturer proved himself fully equal to the occasion.

The Huxley lectureship was founded to commemorate the fact that Huxley received his medical education at the Charing Cross Hospital Medical School, and it is provided that the lecture shall relate to "recent advances in science and their bearing on medicine and surgery." Accordingly, Professor Welch selected as his theme "Recent Studies in Immunity, with Special Reference to Their Bearing on Pathology," and a more timely and better selection it seems could hardly have been made. The subject-matter of the address is presented in so able and lucid manner, with so much originality and learning, that we unhesitatingly pronounce the address a most valuable addition to the literature of scientific medicine, valuable alike to the general reader and the scientific investigator; to the first especially because of its clear restatement in a well-drawn historical perspective of the essential facts in our recently acquired knowledge of the specific properties of the cells and fluids of the body in health and disease, the theories concerning antitoxic action, bacteriolysis, cytolysis, agglutination and specific precipitation; and to the second because of its suggestiveness and its able co-ordination of the new knowledge with the old in pathology and bacteriology, thus drawing the pathologist and bacteriologist closer together, and especially because of the interesting extension in a new direction of Ehrlich's well-known theory in regard to the production and action of specific antitoxins and serums of various kinds.

It will be remembered that when the soluble bacterial toxins of the bacillus of diphtheria and of the bacillus of tetanus were discovered the hopes ran high that in this way would be explained the action of all pathogenic bacteria, but soon these hopes met with disappointment. With this disappointment also fell to the ground the hope that specific antitoxic serums could be produced for all or most of the bacterial diseases, just as in the case of diphtheria or tetanus. The conditions did not prove to be so simple as at first thought, and it is a matter of general regret that so far it has not proved possible to make available for successful use in general medical practice the much more complicated bacteriolytic serums that experiments have shown may be produced in the laboratory against so important infectious agents as the typhoid bacillus, the pneumococcus, the staphylococci, the streptococci, etc. Unquestionably this failure must be ascribed, at least in large part, to our imperfect understanding of the mechanisms by which these organisms produce their pathogenic effects. We know really but little of the source, nature and mode of production of many of the bacterial toxins that we have reason to believe are at work in the production of the diseases in mind. The theory that all the toxic substances result from the disintegration of dead bacteria hardly suffices, and it is in order to better explain problems of this sort that Professor Welch advances a new hypothesis of bacteriogenic cytotoxins produced by stimuli from the cells of the host (somatogenic stimuli). This is a transferred application, so to speak, of the theory of cytotoxins, from the host to the bacterium, and it does seem to be a simple and natural inference from the recent work in these lines. By the same sort of mechanisms both organisms—the host and the bacteria—under the mutual stimuli of their cells produce substances that under the complicated conditions present become antagonistic in so far as they tend to destroy or injure the cells from which the stimuli in the form of atom complexes are derived.

It is recalled that familiar cytotoxins, like the hemolysins and bacteriolysins, are in reality made up of two substances, the intermediate body, which is the specific element produced by the injection of foreign cells into an animal, and the preëxisting complement, which is the actually toxic element. The intermediate body joins the complement with the foreign cell, which started the reaction, thus completing its destruction. If reactions like these are produced in the host's cells, why not also in the case of bacteria and other parasites exposed to analogous conditions? "Expressed in the terms of Ehrlich's side-chain theory, certain substances of the host of cellular origin, assimilable by the parasites through the possession of haptophore groups with the proper affinities, become anchored to the receptors of

1. British Medical Journal, Oct. 11, 1902.

the parasitic cell, which, if not too much damaged, is thereby stimulated to the overproduction of like receptors; these excessive receptors of the parasite, if cast off into the fluids and cells of the host, there constitute intermediate bodies or amboceptors with special affinities for those cellular constituents or derivatives of the host which led to their production, and for others which possess in whole or in part identical receptors. Provided the host is supplied also with the appropriate complements, there result cytotoxins with special affinities for certain definite cells or substances of cellular origin in the host. . . . Either the parasite or the host may provide the complements."

According to this hypothesis the infectious processes may be conceived as immunizing contests, both host and parasite endeavoring to make themselves immune against each other, the outcome depending on the relative proportion and distribution of bacterial cytotoxins and host's cytotoxins. We are told that experiments giving facts in favor of this hypothesis will be published later. It will be seen that this conception permits us to understand how it may be possible for infecting bacteria to produce many special toxins for the various cells in the body, toxins that might be absent in the cultures because of the absence of special stimuli. Considerable support for this view is derived from recent studies by the new methods of snake venoms. It has been shown by Flexner and Noguchi that the toxic actions of these venoms depend on the presence of intermediary bodies with affinities for different cells, the complements being contained, not in the venom, but in the cells and fluids of the animal acted on. Recently Preston Kyes brings evidence that in the case of cobra venom the necessary complement in hemolysis may be found within the red cells of certain animals (endocomplement), and furthermore, that lecithin may act as a complement and complete the hemolytic potency of the venom. These experiments show that our serum and cells contain substances that may be turned against our own cells by the intervention of foreign intermediary bodies, and this certainly strengthens the plausibility of Welch's idea that such intermediary bodies may come from bacteria. And we already have been made acquainted with hemolysins and other special toxins of bacterial origin, such as the bacterial hemolysins that are readily demonstrable in test-tube experiments, and which it lies so near at hand to hold responsible for the secondary anemias of many infectious diseases. Examples are already at hand of bacteria that exert their hemolytic properties during life, e. g., streptococcus. We can see the rich field of possibilities for fruitful investigations under the stimulus of these fascinating conceptions of cytotoxic reactions of the most various kinds.

Among other instances showing the direct bearing of studies in problems connected with immunity on pathology, Welch cites the probable action of hemagglutinins of bacterial origin in causing thrombi of agglutinated red corpuscles. Analogous agglutination of white corpuscles is also quite probable. And he urges further search for bacterial cytotoxins for other cells of the body than blood corpuscles, believing that in this direction will be found better explanations for many lesions, e. g., those of typhoid fever, than we are now in a position to advance. While the chief stress of the lecture is laid on the toxins of bacterial origin, suggestive references are made also to animal cytotoxins, to isolysins, to autocytotoxins, and to the rich fruits borne by the studies in immunity in the field most directly concerned, namely, the resistance and predisposition to disease. The desirability of studying the condition of the blood serum as to its content of intermediary bodies and complements in health and disease is emphasized.

THE LUNG COMPLICATIONS OF APPENDICITIS.

Probably every surgeon of much experience has seen several cases of severe post-operative pneumonia, and possibly of death, following operation for appendicitis. A more careful observation of the condition of the lungs after all operations would no doubt show a larger proportion of cases in which there is some inflammation of the lungs after these operations than is generally supposed. The symptoms are so slight in many cases that they might be readily overlooked, and recovery is little if any delayed.

Sonnenburg[1] of Berlin, who has become well known to American surgeons as one of the few advocates of the early operative treatment of appendicitis in Germany, has recently published a very interesting paper on this subject. In 1,000 cases of appendicitis operated on in private and hospital practice, he finds lung complications following operation in 5 per cent. of all cases. In 740 cases operated on at the Moabit Hospital in Berlin, he found 7 cases of pleurisy and 1 case of bronchitis, all followed by recovery. In 5 cases of pneumonia 3 of the patients recovered. The lung complication followed in 12 cases which were operated on during the attack and in 1 case operated on in the interval. Although it would seem at first sight that the dangers of this complication are much less in cases operated on in the interval, and Sonnenburg's statistics in hospital practice seem to indicate this, his experience in his private clinic is quite the reverse. Out of 260 cases operated on in his private sanitarium lung complications were observed in 13 cases, 9 of whom were operated on in the interval and 4 during the attack.

As to the cause of these important complications, various suggestions have been made. Since Gussenbauer's paper, published a number of years ago, called attention to the inflammatory conditions of the lungs which frequently follow strangulated hernia and showed the apparently direct connection between the thrombosis which occurs in the small vessels in the strangulated part and lung embolus, numerous writers have been inclined to attribute most of these pneumonias to

1. Archiv für klinische Chirurgie, 1902, lxviii. 468.

embolus. Although a large number of cases may be due to embolus, there are undoubtedly cases in which other etiologic factors are of still greater importance. The advocates of chloroform anesthesia are inclined to call all of these cases ether pneumonias, or ether bronchitis, but it is significant that the inflammation seldom follows directly after the administration of the anesthetic, but usually several days later, which should not be the case if the inflammation resulted directly from the effect of the anesthetic. Exposure of the patient in poorly heated operating rooms may give rise to chilling of parts of the body not accustomed to exposure and inflammatory diseases of the respiratory tract. This is no doubt a factor of greater importance than is generally believed. The fact that patients are kept flat on their backs to lessen the liability to post-operative hernia, not only after operations for appendicitis, but after all abdominal operations, makes these inflammatory conditions much more frequent after abdominal operations. Those who believe that thrombosis most frequently results from infection will perhaps attribute to the infectious condition itself a part of the danger of causing these conditions.

No doubt more careful attention to details which suggest themselves from a consideration of the causes of lung inflammations after operation would considerably reduce the number of such complications which frequently add so much to the anxiety of the surgeon after operation.

BEHRING'S RECENT WORK ON TUBERCULOSIS.

There is much of fundamental interest in the recent publication on "Tuberculosis" from Behring's Institute in Marburg,[1] in which are reported the results of the investigations of the last five years by Behring and his assistants Römer and Ruppel. Indeed, if we mistake not, the solutions are here given of some of the fundamental problems in tuberculosis. The most important of these is undoubtedly the one concerning immunity to tuberculosis. Behring shows that by repeated injections of cattle with cultures of human tubercle bacilli that are comparatively harmless for cattle, there is produced a complete immunity to virulent bovine tubercle bacilli, bacilli so virulent that 2½ milligrams injected intravenously causes death in two to three weeks from acute miliary tuberculosis of the lungs. Behring designates this method of immunization as "jennerization." Animals immunized in this way withstand well the intraocular injection of virulent tuberculous material which so injected in untreated animals causes rapid destruction of the globe.

Behring passed a human tubercle bacillus through rabbits and goats and found that the originally nearly harmless bacillus now had acquired as great a virulence for cattle as any of the cultures of bovine bacilli. Though originally much influenced by Koch's dualistic theory of the tubercle bacillus, Behring now abandons that teaching, and he now holds that the bovine and human bacilli merely show labile differences in virulence and consequently well may be alternately infective for both man and cattle. The fact that cultures of human bacilli by "jennerization" produce such a solid immunity to highly virulent bacilli of bovine origin certainly shows a close relationship between the bacilli from the two sources.

Should Behring's work stand then it will form a landmark in the history of the study of tuberculosis second in importance to no other work in this field since the discovery of the bacillus of tuberculosis. The establishment of a solid, unquestioned immunity to tuberculosis in cattle necessarily means much, both from the economic point of view and also from the standpoint of the limitations of the spread of the disease. Furthermore, this demonstration is rich in therapeutic possibilities, and the settlement of the much-disputed question of the relationship of human and bovine bacilli also marks a great step in advance.

1. Beitr. z. exp. Therapie, Heft 2.

THE PSYCHOLOGIC MOMENT IN SURGERY.

Text-books on surgery give, as a rule, only a brief mention of the importance of the mental state of the subject at the time of operation. Perhaps it is considered too self-evident to require emphasizing—a matter that no competent surgeon will neglect. This may be so to some extent, but it is also possible that young surgeons, and perhaps older ones, do not always give the mental condition of the patient the attention it deserves and attribute to other factors the misadventures that are really due to this.

Dr. O. B. Will, in a recently published article,[1] gives especial attention to this point which, as he says, is theoretically important, but practically often overlooked, and illustrates its importance with cases from his own experience. To quote his words, it is his confident belief that "while nothing in operative environment, technic and skill is usually overlooked, the facts will bear me out in the assertion that in four cases out of five in general operative work the influential circumstances and conditional disturbances of the patient are not inventoried with half the zeal, skill and perfection bestowed on the instruments and other accessories to be employed." While this has reference not only to the psychologic condition, but to all others aside from the surgical preparation and technic, it is this particular point that is probably most neglected. Few operators would care, unless compelled by the emergency, to perform serious operations where the physical symptoms clearly indicated a failure or decided weakness of vital resistance, but it is much less certain that like account will be taken of purely psychic states that may nevertheless affect the outcome. The closest study of every nervous and mental function would not seem to be amiss when an operation that involves any strain on the patient's endurance and vital resistance is undertaken.

1. Peoria Medical Journal, October, 1902.

These suggestions seem almost commonplace in their self-evident verity, but according to Dr. Will they are too often overlooked or unheeded. He, however, goes farther and counsels giving heed even to human weaknesses and superstitions. If Friday, the phase of the moon, the thirteenth day of the month, or whatever else is a bugbear it is well to regard it when possible. The surgeon can not rightly take any unnecessary risks, and even these seemingly ridiculous handicaps may affect his success and the patient's future welfare. There are few of us that can be insured against these influences; superstitions, presentiments, etc., are likely to beset any of us, especially in conditions of bodily weakness and disease, and they may have a very appreciable effect in any case of special stress. There are many untoward happenings in surgery credited to postoperative complications that are very possibly due to neglect of the psychic factor as much as to any pathologic cause. It prepares the *locus minoris resistentiæ*, and without this infection or other morbid processes would be harmless. In these days we are having in the various popular delusions, perhaps more than was formerly the case, numerous object lessons of the influence of the mind over the body. The medical profession has never been without warning of or opportunity to learn these truths; they are old in medical literature, but we have perhaps neglected them too much in surgery as well as in medicine. The psychologic moment is as important in one as in the other, and in both as in any and every other phase or enterprise of human activities.

DOUKHOBOR FANATICISM.

A curious story comes from Assiniboia in the Canadian northwest. A few years ago a considerable number of Russian quakers, or doukhobors as they are called, settled there and have thus far prospered. Prosperity, however, seems to have been too much and too sudden for them, after their Russian persecutions; they are, as a Canadian correspondent puts it, ill at ease without trouble of some sort. Therefore, under the influence of a newly arrived Russian prophet, and some say from that of Tolstoi's works, a considerable number of doukhobors have arrived at the conclusion that it is wrong not only to deprive any animals of their life or freedom, but also to appropriate to their own use their services and products. They accordingly have turned their animals loose, commending them to Providence, and made bonfires of their woolen clothing, leather shoes and whatever else they had about them that was taken from the animal kingdom. As they were already vegetarians they only had to modify their diet by giving up milk products, eggs, etc., that they had formerly used, and as their crops have been good and their barns and cellars are generally well stocked, it is not likely they will suffer except in the lack of warm woolen clothing during the coming winter. Like most enthusiasts they are full of missionary zeal and propose a propaganda of their new peculiar doctrines. It will be a matter of some interest, should this craze become permanent, to observe what the effect of such a mode of living will be in a climate like that of Manitoba or Assiniboia. So far we believe, no northern race, or for that matter any other race, has ever been as purely vegetarian as these doukhobors propose to be, and the outcome of this extreme experiment in zoöphily will be worth watching. It is most probable, however, that it will not be carried out consistently for a sufficient length of time to produce any effect on the race.

EARLY MEDICINE IN MARYLAND.

Among the interesting historical papers on the early history of medicine in this country, published in the Bulletin of the Johns Hopkins Hospital, not the least interesting is that by Dr. Eugene Cordell on the Transactions of the Harford Medical Society in the August and September issue. It gives in its extracts and comments on the same, with its historical data attached, what must be in many respects a good idea of the medical practice in Maryland at the close of the eighteenth century. In some respect it is a closer picture of the average of practice at that date than can be gained from the periodical publications of the same period—which are practically limited to one—the Medical Repository—since in the latter a stricter editorial scrutiny has probably given only a selected or blue-penciled and revised version of the medical contributions of the time. The treatment of those days was heroic, venesection a routine practice, even as much as seven pints taken from a patient with pneumonia in less than five days. With the lancet, "backed by his mercury, his cathartics and his blisters," the physician of those days was ready for anything pathologic that came his way. Perhaps it was fortunate that our ancestors in that period had perforce to leave themselves in Nature's hands as much as they did, though it would be incorrect to assume that individual common sense did not at times overrule the dominant therapeutic notions of the day. It is interesting to notice, also, the extravagant, as it seems to us, reverence to authority, especially that of Rush, on the part of these early physicians, which is well illustrated in the extracts given by Dr. Cordell. Rush was a great man, but judging from these transactions we are far from estimating him as highly as did his contemporaries. It is perhaps a little unfair to judge the practice of those days too strictly from the case histories then thought noteworthy enough to report to a rural medical association. Nevertheless a perusal of Dr. Cordell's paper makes one a little complacent over the fact that we live in these times. It may be that a hundred years hence some searcher of medical antiquities will find as much for self-satisfaction over the progress that has been made since our own benighted period.

CRITICISM OF MEDICAL LEGISLATION AND ORGANIZATION.

In a small book,[1] read widely enough to demand several recent editions, which is devoted to the expounding of a thorough-going scientific rationalism, we find in a chapter headed "The Victory of Medical Science," a short criticism of medical organization. It seems particularly worthy of notice because we have heard almost

1. The Crime of Credulity. H. N. Casson, Fifth edition, p. 186.

the same words uttered by one or two very successful men in the regular profession. The author thinks that the greatest danger which confronts medical science at the beginning of the twentieth century comes from its being "infected with the monopolistic spirit of the times," and thus attempting to form a medical trust and to secure the protection of its interests by the state. The desire for laws against unlicensed practitioners seems violent, intolerant and thoroughly medieval to this author. He says: "In the long run, medical science has nothing to fear from the unlicensed practitioner. The fittest will survive, and the protection of class interests by legislation is always followed by a reaction, which is most injurious to those who have been favored." The peculiar feature of this argument, especially as coming from the pen of a writer who constantly preaches social betterment, is its utter neglect of the standpoint of the public. Even were it necessarily true, which is highly improbable under the complicated conditions of human life, that the professional man of highest scientific attainment is the best fitted to survive, yet why should the public be a blind party to the struggle for survival and in the meantime suffer unadvised from the impositions of incompetency and charlatanism? We all recognize that the proper requirements for the practice of modern medicine are so far apart from the understanding of the non-scientifically educated public that it is quite useless to expect widespread ability to judge between competency and cheek or carelessness. And how far the impositions of charlatans really extend we may easily see in the advertising columns of our newspapers. As to medical organization on the present liberal scientific basis and the legislative attempt to restrict the field of medical practice by some gauge of competency—it is obvious that both of these proceedings contribute in many important ways far more to the welfare of the public than to that of the members of the profession.

Medical News.

ILLINOIS.

Asylum Asks Appropriations.—Trustees of the Illinois Western Hospital for the Insane at Watertown, will petition the next session of the legislature for appropriations aggregating $450,000. The chief item in the new schedule is an appropriation for a ward building, to cost $200,000.

Returned from Philippines.—Dr. George A. Zeller, late surgeon U. S. V., returned to Peoria, October 23, and will at once take charge of the Hospital for Incurable Insane, Bartonville. He has resigned from the United States service.——Dr. Harry R. Lemen, U. S. V., Upper Alton, has arrived at San Francisco, on a short leave of absence.

The Blacklist in Moline.—Rules to govern physicians and the blacklist were adopted at a recent meeting of the medical staff of the Moline City Hospital. Any physician calling on a blacklisted person without his fee in advance will be liable to a forfeit of $25, and failure to pay the forfeit will result in the suspension of the physician from the society. The rule is to be suspended in cases of emergency. The Rock Island physicians are following the same course and will work with the Moline doctors for mutual protection.

Per Capita Cost at State Institutions.—The net cost per capita at the various state institutions for the three months ended September 30 was as follows: Illinois Northern Hospital for the Insane, Elgin, $37.48; Illinois Eastern Hospital for the Insane, Kankakee, $34.31; Illinois Central Hospital for the Insane, Jacksonville, $31.40; Illinois Southern Hospital for the Insane, Anna, $35.92; Illinois Western Hospital for the Insane, Watertown, $33.13; Hospital for the Criminal Insane, Chester, $60.70; Illinois Hospital for the Incurable Insane, Bartonsville, $35.14, and Illinois Charitable Eye and Ear Infirmary, Chicago, $56.22.

Chicago.

Lorenz Goes West.—Professor Lorenz and his suite departed for the Pacific Coast, October 26.

Personal.—Dr. Louis E. Schmidt has been appointed clinical professor of genito-urinary surgery of Northwestern University Medical School.

Diphtheria threatens to be more prevalent and fatal this fall than at any time since its treatment by antitoxin was begun in Chicago some seven years ago. Twenty deaths were reported from this cause last week, as against 12 for the corresponding week last year.

Bequests to Hospitals.—By the will of Siegfried H. Kirchberger the Alexian Brothers' Hospital, Chicago Lying-In Hospital, Visiting Nurses' Association and the National Jewish Hospital for Consumptives at Denver, each receives $1,000. For a memorial room in the Michael Reese Hospital, to be conducted by the United Hebrew Charities, $3,000 is provided.

Chicago Pasteur Institute.—Since the opening of the institute in July, 1900, 1,538 patients have been treated, 745 of whom came from Illinois, 166 from Ohio and 112 from Iowa. One thousand three hundred and eighty-two were bitten by rabid dogs, 9 by hydrophobic human beings and the remainder by various animals. The deaths reported are 7, a mortality of 0.45 per cent.

The Week's Mortality.—The deaths from all causes for the week ended October 25 were 483, 38 more than in the preceding week and 41 more than in the corresponding week of 1901, the respective annual death rates per 1,000 being 13.83, 12.73 and 13.10. Of infants under one year 77 died and 106 individuals over 60. Diseases of the lungs caused 96 deaths, heart disease 43, nervous diseases 36 and violence 43.

Higher Standard for Nurses Demanded.—Strict laws that will establish a standard for trained nurses and prevent the graduating of inexperienced young women are being urged by Chicago physicians. Several institutions in Chicago now issue diplomas to students after four or six months' study. Two of these institutions are correspondence schools and are instructing nurses in all parts of the middle west.

Unlicensed Physician Fined.—When the case of Anthony Lalla, an employe of a medical institute, charged with practicing medicine without a license, was called in the Criminal Court, October 18, the defense entered a plea of nolle contendere. A fine of $100 and costs, amounting to $19, was imposed. ——Mary S. Deitrich was found guilty of practicing medicine without a license October 20 and was fined $100 and costs.

Prevention of Germ Diseases.—The Department of Health says that it realizes its duty to prevent disease to the full extent of its power and knowledge. It knows that the inhalation of formaldehyd gas will prevent a very large proportion of cases of the diseases which now threaten the public health. For a few cents any druggist will furnish a half-ounce metal ointment box, packed with absorbent cotton and the cotton wet with formalin. The formalin box should be carried during the day and put under the pillow at night. At the onset of coughing, sneezing, running of the eyes and nose or other premonitory symptoms of having "caught cold," remove the cover from the box and inhale the vapor or gas through the nostrils and mouth alternately for two or three minutes. Be careful not to inhale too vigorously at first. Frequently a single use will cut short the symptoms, but it may be repeated without harm as often as necessary during the day and night. It is confidently believed that thousands of cases of the contagious and infectious air-borne diseases, with a large percentage of deaths, could be prevented by this simple and inexpensive method.

INDIANA.

Five Physicians Indicted.—In the alleged grave-robbing cases at Indianapolis 25 individuals have been indicted by the grand jury, five of whom are physicians.

Huntington Hospital Open.—The Huntington City Hospital opened to receive patients October 10. Dr. Charles L. Wright is attending surgeon and Dr. Helen K. McIlvaine resident physician.

Professional Headquarters.—Physicians, dentists and lawyers of Muncie have decided to erect a building to be devoted entirely to office purposes. The building proposed with lot will cost about $35,000.

Personal.—Dr. Graylord M. Leslie, Fort Wayne, has been compelled to go to Colorado for his health.——Dr. George M. Young, Evansville, for fifteen years chief of staff at St. Mary's Hospital, has accepted a similar position in a hospital in Toledo, Ohio.

MARYLAND.

Hospital for Cecil County.—Drs. Howard Bratton, Charles M. Ellis and John H. Jamar, Elkton, have been appointed by a meeting of those interested in the matter, a committee to devise means to establish a hospital in Cecil County.

Physician Wins.—A suit against Dr. Edwin B. Claybrook, Cumberland, in which malpractice was alleged by a young woman, who was operated on for a cystic tumor and $5000 damages asked, was non prossed in court, October 23.

Baltimore.

The Week's Deaths and Diseases.—There were 166 deaths for the week ended October 25, 7 being from typhoid fever, 2 from diphtheria, and 12 from pneumonia. Of new cases there were reported, from diphtheria, 42; scarlet fever, 19; typhoid fever, 37, and measles, 29.

Personal.—Dr. William H. Welch returned from England, October 20.——Dr. Clapham Pennington has returned from Europe.——Dr. Hubert Richardson has resigned his position as chemist at Mt. Hope Retreat.——Dr. William Simon has resigned the chair of chemistry at the Maryland College of Pharmacy.——Dr. James M. Craighill has been elected president of the University of Maryland Medical Society for the ensuing year, and Dr. I. E. Atkinson, president of the Medical and Surgical Section of the Medical and Chirurgical Faculty. ——Dr. William H. Baltzell, who has spent the last two years in Paris, has returned to Baltimore.

Etiology of Cancer.—Dr. John C. Hemmeter, experimenting on the etiology of cancer, has obtained a fluid representing the cancer juice freed from possible organisms and epithelial elements. Injecting this in dogs in whom artificial gastric ulcers had previously been produced, he succeeded in four cases of 10 in converting the simple ulcer into a malignant growth. This result followed only, however, when the material was obtained from the dog; the injection of a similar fluid prepared from a human carcinoma was without result. He has been engaged in these researches three years, but he has limited himself to experiments on dogs and the stomach. He has been led to favor the anti-parasitic view of the etiology.

NEW YORK.

Cornerstone Laid.—The cornerstone of the new Herkimer Emergency Hospital was laid to-day. The principal address was made by Dr. Willis E. Ford, Utica. The building and site have been donated by Mr. Levi A. Lawton.

Personal.—Dr. Eugene M. Draper, after 28 years of practice in Ilion, has been obliged to move to California on account of his wife's health.——Dr. Robert C. Woodman has been appointed first assistant physician at the Middletown State Hospital.

Eddyites Spread Diphtheria.—There is considerable excitement in White Plains over the discovery that a child attending one of the schools was ill with diphtheria and received no medical attendance. This child died, and then the coroner discovered that the mother, a brother and a sister were all sick with the same disease. Two or three cases of diphtheria have already developed, which the physicians have traced to this first family, and indignation is high because the health of the community has thus been jeopardized at the whim of these Eddyites. Although the house is quarantined, the "healer" has been allowed to pass in and out daily. The coroner held an inquest, and held the parents of the dead child and the "healer," charging them, under the penal code, with manslaughter.

New York City.

Lorenz Will Come.—It is announced that Dr. Adolph Lorenz will reach New York City, November 5, and will operate at the Hospital for Ruptured and Crippled.

Suture of Heart.—A woman stabbed in the heart by her drunken husband was taken to Bellevue Hospital. It was found that the knife had made a wound in the left ventricle. This was at once closed with six sutures. Although she had rallied sufficiently the next morning to tell how she had been attacked, she eventually died from shock.

OHIO.

New Fraternity Chapter.—A new chapter of the Alpha Kappa Kappa medical fraternity was instituted October 2, at the Ohio Medical University, Columbus. It is to be known as the Pi Chapter.

Typhoid at New Castle.—New Castle has had 350 cases of typhoid fever and 49 deaths from that disease since the first of January, and last month's reports show that it is rapidly increasing.

Board of Health.—The new municipal code which has just been passed by the Ohio legislature, provides for a board of health for Cincinnati, to consist of five members, to be appointed by the mayor.

Physician Vindicated.—The personal injury case of Earl Herminghuisen against Dr. John G. Keller, Toledo, to recover $10,000 for alleged malpractice, was dismissed, October 15, immediately after a jury had been empaneled. The costs were assessed on the plaintiff.

Divine Healer Arrested.—At the instance of the State Board of Medical Examination and Registration, an aged disciple of Schlatter in Cincinnati was arrested, October 17, for practicing medicine without a license. The accused was released in $500 bonds. She maintains that she does not profess to be a doctor and, therefore, does not come under the state regulations covering the practice of medicine.

The medical college situation in Cincinnati has been somewhat altered this fall by the decision of the Cincinnati College of Medicine and Surgery to close its doors. Many of the students registered at this college last year have now registered at the two remaining colleges, while a few have gone elsewhere. The total registration at the Miami Medical College and at the Ohio Medical College remains about the same as last year.

To Study Smallpox.—Dr. W. T. Howard, Jr., professor of pathology at Western Reserve Medical College, who has been employed as expert bacteriologist, has been authorized by the city council of Cleveland to spend $4,000 in an effort to discover the nature, progress and spread of the smallpox bacteria. He will erect a small laboratory where, with two trained experts in bacteriology, the work will be pursued under his personal supervision.

Quarantined Physician Released.—On the statement of State Health Officer Probst that a local board of health had no right to hold a physician in quarantine, the sanitary committee of the Sandusky board has decided to release Dr. William H. Busch, health officer, who volunteered to go to the hospital and care for Miss Winifred McGushin, who was taken ill with smallpox here and has now recovered. The committee first ordered that Dr. Busch be retained for seventeen days in quarantine, but he has now been released.

Infectious and Contagious Diseases.—The Bureau of Infectious and Contagious Diseases, Cincinnati, reports for the week ending October 24, 59 cases, with 20 deaths, distributed as follows: Diphtheria, 18 cases, with 4 deaths; scarlet fever, 13 cases, with no deaths; typhoid fever, 15 cases, with 6 deaths; smallpox, 4 cases, with no deaths, and a scattering of measles, chicken-pox, mumps, and whooping cough. The number of typhoid cases are steadily diminishing, but the health officer still urges the public to use none but boiled water.

Personal.—Dr. J. C. Oliver, dean and professor of surgery in the Miami Medical College, Cincinnati, who for the past few weeks has been seriously sick with pneumonia, is rapidly convalescing.——Dr. George Stockton, assistant physician to the Columbus State Hospital, has been elected superintendent, in place of Dr. E. G. Carpenter, deceased. Dr. Stockton was appointed assistant physician in 1879, but had to leave on account of politics in 1890; he returned, however, in 1892 and has been there ever since.——Dr. George S. Buttemiller, Cincinnati, has been appointed resident physician of the Speers Memorial Hospital, Dayton, Ky.

PENNSYLVANIA.

Personal.—Dr. J. Pandora Simpson, New Castle, sailed from New York, October 18, for India, where she is to take charge of a large hospital under the auspices of the United Presbyterian Church.

Smallpox in Ehrenfeld.—The State Board of Health sent a representative to Ehrenfeld to investigate the smallpox situation. He reports that 34 cases of genuine smallpox exist in 33 houses in the borough; that the real nature of the disease has not for some time been appreciated, the general opinion being that it was chicken-pox and not smallpox.

Reorganization of Hospital.—An adjourned meeting of physicians and laymen interested in the organization of the Beaver County General Hospital was held in Rochester, October 6. Drs. Walter A. Rose and Guy S. Shugert, Rochester,

and Dr. John J. Allen, Monaca, were elected directors; Dr. Allen was elected vice-president, and Dr. Shugert treasurer.

Association Acquires Hospital.—The McKees Rocks Hospital was purchased, October 8, by the McKees Rocks Medical Association, from Dr. Samuel M. Black. The purchase of the hospital, which was organized three years ago as a private institution by Dr. Black, will make it a public institution, controlled by the medical association, which will appoint the hospital staff from among its own members quarterly.

Philadelphia.

Health Report.—The official health report for the week ended October 25 showed a marked increase in smallpox and typhoid fever. Of the former 12 new cases were reported, as against 2 for the previous week; of the latter 90 cases, as against 49 the previous week.

Clinic for Poor Consumptives.—Through the generosity of Henry Phipps of New York, Philadelphia is to have a clinic for the treatment of poor consumptives. He has given $5,000 for the purpose of securing suitable quarters for a clinic, and says he will give money every year to support the institution.

Lorenz in Philadelphia.—A committee of the trustees of Jefferson Medical College has invited Dr. Adolph Lorenz to come to Philadelphia as a guest of the institution. It is hoped that he will operate in the clinic of Dr. H. Augustus Wilson, professor of orthopedic surgery in the college, and president of the American Orthopedic Association.

Dinner to Drs. Keen and Wood.—It is the purpose of a number of the friends of Dr. William W. Keen and Dr. Horatio C. Wood to tender them a dinner, November 6, to celebrate their safe return to this country after a long absence. The committee is composed of Drs. William Osler, Henry W. Stelwagon, Francis X. Dercum, John H. Musser, George E. de Schweinitz, J. Chalmers DaCosta, Alfred Stengel, and Hobart Amory Hare, chairman.

Personal.—Dr. William M. Capp, by reason of illness, is unable to serve as assistant chief resident physician of the Philadelphia Hospital to which he had been appointed temporarily, pending the selection of a successor to Dr. Pfahler. ——Dr. Frederick A. Packard is very ill with typhoid fever at the Pennsylvania Hospital.——Dr. Aloysius O. J. Kelly is now editor of *International Clinics*, succeeding Dr. Henry W. Cattell.——Dr. Frederick H. Milliken has returned from a European tour.——Commander Robert E. Peary, U. S. Navy, the Arctic explorer, is a patient in the private hospital of Dr. W. W. Keen, where he underwent a slight operation necessitated by freezing his feet a few years ago.

GENERAL.

Should Lepers Marry?—An interesting discussion has arisen in Hawaiian affairs. Attorney-General Dole is quoted as saying concerning the marriage of lepers: "This is the only country where leprosy is segregated. I would be loath to take the last bit of comfort from these people by breaking up their family ties. The children of leprous parents are not always tainted, as I understand it, and I think that it would be too harsh a measure to take away the little happiness that remains to them." Many opinions pro and con are being expressed. Word from Hawaii states that Dr. W. O. Smith, who was for years the president of the board of health, said that during the last thirty years the average of girls born to leprous parents, showing the taint after birth, had been less than 1 per cent.

Bubonic Plague and Fish.—U. S. Consul Robert M. McWade has noticed the frequent occurrence of bubonic plague among fish-eating people, and suggests that the facts may be worth investigating. Surgeon-General Wyman of the Marine-Hospital Service states, in connection with Consul McWade's report, that if bubonic plague is prevalent among the inhabitants of towns and cities along the water front and among fish-eating people, it is due only to the exposure undergone by them, and by their unsanitary mode of living. Some time ago a report came from Japan that plague in the human race was caused by germs received in the eating of fish. The Japanese specialist Nickaladi made a thorough investigation, and after many experiments stated that the plague reported in fish families was in no way similar to bubonic plague, and in no way could germs from the fish cause plague in the human race.

CANADA.

Appointment.—Dr. Wilfrid Derome has been appointed to the medical staff of the Notre Dame Hospital, Montreal, to replace Dr. Grenier, who has commenced practice at Winocki, Vt.

Liquid Air Plant at McGill.—A new liquid air plant has been recently installed in the physics building of McGill University. It is the gift of Sir William Macdonald for research work.

Vancouver Hospital.—Funds are being raised for the new general hospital for the city of Vancouver, B. C., and the requests for subscriptions are meeting with a ready response. A marine ward is proposed for the sailors of the many ships entering that harbor.

Royal Columbian Hospital Bequest.—This hospital, at New Westminster, B. C., has been given $5,000 by a donor whose name is not given.——Dr. F. L. Stanier has resigned from the position of medical superintendent. Dr. George W. Boggs is in charge until the provincial government appoints a successor.

Ontario's Health During September.—The number of deaths from typhoid fever in Ontario during September was 52, as against 26 in the month of August. The deaths from whooping cough were 9, while in August they were 21. The other deaths for the month were as follows: Scarlatina, 11; diphtheria, 25; consumption, 167.

Montreal Hospitals Might Build Contagious Wings.—Montreal appears to be no further ahead than it was a year ago with regard to the erection of a new Contagious Diseases Hospital. The proposition that the hospitals of the city, especially the General and Notre Dame, build wings for the reception of patients suffering from contagious or infectious diseases, seems to be meeting with a good deal of favor. Now that the Royal Victoria Hospital has recently erected a wing for the treatment of contagious diseases, there seems to be no valid reason why the other two hospitals should not follow suit; and arrangements could be made with the city government, it is urged, whereby a certain sum could be handed annually to these institutions for this purpose.

Diseased Meats and Adulterated Condiments in Montreal.—The announcement by Dr. Laberge, M.H.O., Montreal, that he can buy strawberry jam in that city which has neither strawberries nor sugar in it; that there are catsups which make excellent dyes, and candies which might profitably be used to paint fences with, shows a condition of adulteration of food products in that city and the carrying on of an abominable business which is probably not excelled on the continent. The hygienic committee has been inquiring into the matter with the result that the medical health officer has been asked to write the American Government, supplying the names and brands of adulterated catsups made by American firms and sold in Canada. In addition it was decided to call the attention of the Quebec Government to the enormous quantities of adulterated goods sold in the Province of Quebec contrary to the law.

Quebec Protestant Hospital for the Insane.—The Protestant Hospital for the Insane at Verdun, Que., has just completed and opened a fine new addition to its buildings. This hospital received its first patient July 15, 1890; and at the close of that year there were 139 private and public patients in residence. By December, 1894, the population had grown to 250 patients. In 1896 another addition was erected with accommodation for 100 patients; and the total population at the end of 1897 was 299. At the close of 1898 the patients totaled 323, and at the end of December, 1899, the number had increased to 362. At the close of 1901 this number had advanced to 411, so a new "East House" had to be constructed. Now the population of the institution totals 501. The staff of the Hospital at present is as follows: Government inspectors, Drs. A. L. de Martigney, C. P. Chevrefils and J. J. E. Woods. Consulting Staff—Surgeon, Dr. G. E. Armstrong; physician, Dr. F. G. Finley; gynecologist, Dr. F. A. L. Lockhart; pathologist, Dr. Andrew McPhail, all of Montreal. Officers of the Institution—Superintendent, Dr. T. J. W. Burgess; assistants, Drs. J. V. Anglin and C. A. Porteus.

FOREIGN.

Pope's Physician Ill.—Dr. Lapponi, private physician of the pope, has appendicitis.

Rothschild's Gift to Hospital.—Baron Nathaniel Rothschild gave $200,000, October 24, to the Poliklinik Hospital, Vienna.

Measles in Kamchatka.—A cable from St. Petersburg announces an epidemic of measles in Kamchatka. Ten thousand persons have died of the disease, and the population of some country villages has been nearly wiped out.

The Antituberculosis League in Uruguay is only two months old and yet it already has more than 700 members inscribed, each paying an annual fee of about $3. Donations have been received from banks and numerous national societies, and the city authorities of Montevideo have made an appropriation for it. Pamphlets are being distributed, circulars

posted in workshops, etc., a special dispensary is to be organized and an organ founded if possible.

International Convention for Unification of Heroic Remedies.—The scope and description of this convention were given in THE JOURNAL for October 18, p. 998. Forty-one heroic remedies were placed on the list, for which a standard strength of 10 per cent. was agreed on by the delegates from 19 governments. The convention adopted three resolutions. One advocated the exclusive use of Latin terms for the more powerful drugs. The second condemned the practice of dispensing any heroic remedy in the form of a medicinal wine, and recommended that the more powerful drugs should be made up in the form of a 10 per cent. tincture by percolation with 70 per cent. alcohol, and the fluid extracts in a 100 per cent. strength. The third resolution was in favor of the universal adoption of a standard dropper whose external diameter should be 3 mm. at the tip, that is, a dropper which at a temperature of 15 C. (59 F.) allows the passage of 20 drops of distilled water, a weight of 1 gm. The heroic remedies included in the list are aconite, belladonna, colchicum, digitalis, ipecac, hyoscyamus, nux vomica, opium with laudanum and Dover's powder, strophanthus, ergot, diluted hydrocyanic acid (this contains 1 per cent. of the acid in France and 10 per cent. according to certain other pharmacopeias), cherry-laurel water, bitter almond water, phenoli solutio (to be made with 2 per cent.), sodium arseniate (to be made with the crystallized salt representing 36.85 per cent. of the arsenic acid), Fowler's solution (to be made with 1 per cent. of arsenious acid), syrup of ferrous iodid (to be made with 5 per cent. of anhydrous ferrous iodid), tincture of cantharides, tincture of iodin (to be made with 95 per cent. alcohol), tincture of lobelia, cocain hydrochlorate (the anhydrous salt), mercurial ointment (to be made with 30 per cent.) and wine of antimony (to be made with .4 per cent. of the emetic). A committee was appointed to determine the most appropriate Latin term for the various drugs. A number are known by several Latin names. Further particulars will be found in the *Semaine Méd.* of October 8 and 15.

LONDON LETTER.

Lectures at the Medical Graduates' College and Polyclinic.

A somewhat novel scheme has been inaugurated at the Medical Graduates' College and Polyclinic. It is proposed to have a long, possibly interminable course of lectures on medicine, surgery and the specialties in which the lecturer shall take a subject to which he has given special attention. Thus it will constitute a sort of *viva voce* encyclopedia of which new and amended editions will constantly appear. The lectures will be systematic as distinct from clinical and good summaries of up-to-date knowledge are desired rather than original views. For the latter the college has already made ample provision. The arrangements for the first series of this course from October to end of year have been completed. Sir W. Broadbent will lecture on the pulse. Dr. Patrick Manson on dysentery and sprue; Dr. Theodore Williams on pulmonary tuberculosis; Dr. Seymour Taylor on tabes; Dr. Judson Bury on peripheral neuritis; Mr. James Cantlie on plague; Mr. C. B. Keetley on coxa vara; Mr. J. Hutchinson on syphilis, and Dr. T. Colcott Fox on lupus.

Correspondence.

Meckel's Diverticulum Mistaken for the Appendix.

CHURUBUSCO, IND., Oct. 14, 1902.

To the Editor:—The inclosed letter I wrote to Dr. James E. Moore and as this case has been referred to twice through THE JOURNAL during the past spring and summer, I think it but justice to your readers that I set myself right before them.

JAMES W. SQUIRES, M.D.

CHURUBUSCO, IND., Oct. 14, 1902.

Dr. James E. Moore, Minneapolis.

My Dear Doctor:—I wish to beg pardon in advance for writing to a stranger, but I wish to thank you on my own part, and that from the bottom of my heart; and in behalf of the medical profession in general, from whom I know, perhaps better than any other man, that thanks are due for your valuable article on obstruction of the bowel from Meckel's diverticulum, that was read at the last meeting of the American Medical Association, and published in THE JOURNAL of the American Medical Association, Oct. 4, 1902, of which I am a member and have been for a decade. I am deeply interested in the whole paper; we have so little literature on the subject in our profession, but most particularly am I interested in the following, which I copy from your paper: "A verdict for $1,000 was recently given by a jury in one of our western states against a surgeon who admitted that he had removed a Meckel's diverticulum instead of an appendix." I am unquestionably the surgeon who was victimized in this instance, and the one to whom you refer, but the verdict was for $1,500, instead of $1,000; said judgment was rendered April 9, 1902, by a jury of twelve farmers who I suppose knew as much about surgery as the average farmer, and I find that the farmer knows about as much about surgery as the average lawyer at the bar or judge on the bench. Why should not he? Said verdict was approved by J. W. Adair of the Circuit Court, Thirty-third Judicial District, who resides at Columbia City, Ind., who admitted that in his opinion, after hearing the evidence, that the operation was necessary, and that it was well performed, but seemed inclined to believe, as did the attorneys for the prosecution and the jury, that a surgeon had no business to be mistaken, and should he make a mistake, though it be only in the name, and affect not in the least the efficacy of the operation, he should pay for said mistake. I operated on this patient, a young man of 23 years, June 28, 1901. He presented the history and symptoms of all but a typical case of appendicitis. I removed what I named the appendix, dressed the wound and bandaged the patient, the same as I have done on many patients before; I saw him with Dr. N. B. Moore the next day and found him doing well, but doing some moaning. We dressed the wound. I then discharged the patient so far as I was concerned and left him in the care of their family physician, Dr. Moore. Two days later another doctor was called, the family physician discharged, another surgeon called and another doctor. The belly was reopened, my mistake discovered, the family and patient informed of the find, and then pandemonium reigned supreme. Six weeks later, this same patient rode to Columbia City, a distance of ten miles, over country roads, in a wagon or buggy to employ attorneys to prosecute his savior. He secured their services on a contingent fee, as I have been creditably informed, and rode home the same day. The trial came on in March, 1902, and that prosecuting witness was there, a picture of health. The case is now in the Indiana Supreme Court.

Doctor: Should the case be reversed in the Supreme Court, may I not count on you for a deposition? Yours truly,

JAMES W. SQUIRES.

The Successful Treatment of Gonorrhea.

RUTLAND, VT., Oct. 22, 1902.

To the Editor:—I note in THE JOURNAL, Oct. 11, 1902, an article from the pen of S. T. Rucker, M.D., of Tennessee, "The Successful Treatment of Gonorrhea and All Inflammatory Diseases of the Urethra by Packing It with an Antiseptic Oiled Dressing." The author states that he wishes "to announce to the profession a new method of treating this intractable malady by packing the urethra with an antiseptic oiled dressing."

This "new method" is not a new method, unless the important part of it is the oily medicant. For in a paper published in the *Medical News*, Sept. 27, 1893, Pitts describes a treatment used by him, namely, tamponing the urethra with pledgets of cotton soaked in a mercurial solution, and introduced into the urethra by the aid of an ordinary endoscopic tube. Pitts, if I remember correctly, did not treat his cases as frequently as Dr. Rucker suggests, however. I can not see but that the methods are identical in their purpose, i. e., that of draining and antisepticizing the urethra. If this be the case I can not understand (or have I been able to attain the results that the originators report) how any one who is familiar with the endoscope and has witnessed the spasmodic contractions of the canal on a cotton swab on the end of an applicator, can help expecting to get this same spasm on any foreign substance left in the urethra. The secondary irritation that must result therefrom can not help aggravating the morbid condition present. In the cases I treated by both methods the victims "pulled the string" shortly after leaving my office.

WILLIAM WARREN TOWNSEND, M.D.

Queries and Minor Notes.

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish his name will be faithfully observed.

PARAFFIN PROTHESIS.

PLAINFIELD, IOWA, Oct. 27, 1902.

To the Editor:—Can you give me any information on the subcutaneous injection of gelatin, paraffin or other substances to correct slight deformities of the nose? Has an article on this work appeared in THE JOURNAL? L. H. M.

ANS.—The method of using paraffin for facial and other prothesis was introduced by Gersuny some two and one-half years ago and has since been followed up by various surgeons in this country and elsewhere. In THE JOURNAL for April 19, of this year, there appeared an article by Dr. R. M. Parker, giving a number of successful cases. Other articles have appeared in this country by Drs. Harmon Smith, in the *New York Medical Journal*, May 17; E. P. Robinson, *New York State Journal of Medicine*, May; Hal Foster, *St. Louis Courier of Medicine*, August; and F. J. Quinlan, *Laryngoscope*, August. These do not include all the literature, as there have been numerous other papers published throughout the world.

PREMATURE ESCAPE OF LIQUOR AMNII.

KEARNEY, NEB., Oct. 15, 1902.

To the Editor:—How long should a physician let a patient (primipara) go after rupture of membranes and escape of liquor amnii before using instruments and delivering? F. A. P.

ANS.—A definite answer as to time can not be given. Rupture of the membranes is not in itself an indication for operative interference. If the rupture occurs in the beginning or early part of labor it is desirable that the patient remain continually in bed in order that as much of the water may be retained in the uterus as possible and that she may be kept clean. Only when version must be done, for example, in case of placenta previa or prolapse of the cord, it is necessary to proceed at once before the water has escaped and the uterus has too firmly contracted around the fetus. If danger to the mother or to the child from prolonged or ineffective labor demands the immediate emptying of the uterus, then the cervix must be dilated by the metreurynter, by manual dilatation or by the cutting operation of Duehrssen, before extraction is attempted.

During pregnancy a discharge of water from the uterus may come rarely from between the chorion and the amnion or it may be the amniotic fluid. In the latter case it may come from a high or a low rupture of the membranes. If the rupture is directly opposite the internal os labor is likely to follow within a few days. Where the opening is high pregnancy may continue for some weeks if the patient be kept continually in the horizontal position and not allowed to rise even to go to the closet. In this way labor may be postponed until the child is sufficiently developed to live outside the uterus.

In all cases it is important that the patient be kept very clean so that the discharge shall not become contaminated and allow an ascending infection of the uterus. It is generally desirable to shave the vulva and use antiseptic washes *externally* several times a day.

TURTLE SERUM.

Dr. W. T. Howle, Charleston, Mo., favors us with the following contribution on a very popular subject:

The turtle is composed of all kinds of flesh, and the serum collected by distilling his blood has a curative action second to none yet discovered. Dr. Rush, a famous fisherman and a dear lover of turtle soup, and who has experimented largely in culinary and medical departments, has produced a blood serum from the lake turtle (Dr. Rush lives on Brewer's lake, Mississippi County, Missouri), which cures all maladies in which there is a blood dyscrasia. The Doctor experimented first on the bullfrog serum, but found it curative only in people who travel on steamboats, ships or flatboats, skiffs and canoes. No person has ever been known to get drowned who had taken even a few drops of the frog serum. When a patient falls into the river, lake or any body of water, after taking a few drops of frog serum, he floats like a cork and no sooner goes under water than he comes up again, thus making it utterly impossible for him to drown. But we are digressing.

Turtle serum is not specific in persons exposed to deep water, but is specific where the water is shallow—say, two or three feet in depth. The frog serum sometimes produces a croaking hoarseness—outside of this it is perfect in its effect. Frog serum is specific in spermatorrhea and sexual weakness. The frog is never impotent and is prolific in sexual appetite. Those who take frog serum have a tendency to be amorous toward everything in reach.

Turtle serum is nutritious, as everybody knows. It cures all people who have become emaciated from any cause. Each drop adds a pound of flesh daily to those who take it. It alters the patient so rapidly that it keeps a tailor busy readjusting his clothing. This can be remedied to some extent by putting him in a private room and keeping him there until he is fat enough to resume his avocation. (If the room is warm he need not wear any clothing.) The turtle serum has driven all the calomel doctors out of Mississippi County, and only Dr. Rush is left. The Doctor is kept busy distilling turtles (the lake and sloughs near by are well supplied with turtles and frogs), and he has thousands of men employed bottling the serum. He is shipping most of his products to Chicago and Canada, there being little demand for them in the South.

Emaciation attacks many people, but will soon be eradicated. Dr. Rush will soon have enough serum to make fat every man, woman and child in the universe. We are sorry for those who have invested largely in other serums, but glad that our countryman and fellow citizen, Dr. Ben Rush, of Mississippi County, Missouri, has made this wonderful discovery. Whether turtles that grow in other counties will produce the same kind of serum, remains undiscovered and does not matter, as Brewer's lake contains enough turtles and frogs to cure all the people that will ever inhabit the globe.

Marriages.

JOHN V. FOWLER, M.D., to Miss Bertha Griffiths, both of Chicago, October 8.

A. M. ROUNDTREE, M.D., to Miss Hattie Rogers, both of Adrian, Ga., October 7.

EDWARDS H. PORTER, M.D., to Miss Harriet Noble, both of Tiffin, Ohio, October 29.

HAYWARD S. HANSELL, M.D., to Miss Susie Wilson, both of Atlanta, Ga., October 23.

JAMES JOSEPH CARROLL, M.D., to Miss Agatha I. Ross, both of Baltimore, October 15.

CARLETON O. BOOTH, M.D., to Miss Jeannette Houck, both of De Land, Ill., October 15.

PERCY R. TURNURE, M.D., to Mrs. Sadie Price Pell, both of New York City, October 8.

CHARLES GARVER, M.D., Lorain, Ohio, to Miss Maud Parrish of Wooster, Ohio, October 7.

JOSEPH WELLER, M.D., Akron, Ohio, to Miss Metta Dague of Cleveland, Ohio, October 15.

JAMES Y. WELBORN, M.D., Evansville, Ind., to Miss Mamie Ingle Begley, Inglefield, Ind.

WILLIAM D. BYRNE, M.D., to Miss Nellie Frances Lawlor, both of Chicago, October 22.

GEORGE E. MORROW, M.D., Baltimore, to Mrs. Berrie G. King, at Glyndon, Md., October 14.

FRANCIS J. DRAKE, M.D., Phillipsburg, N. J., to Miss Julia Hazzard of Easton, Pa., October 2.

EDWARD P. LOCKART, Norway, Mich., to Miss Martha Morris James of Oshkosh, Wis., October 22.

EARLE H. RUSSELL, M.D., Easley, S. C., to Miss Sallie Brewer of Elberton County, Ga., October 22.

JOHN LAWRENCE WORK, M.D., Dunavant, Kan., to Miss Lida Bergen, of Topeka, Kan., October 15.

WILLIAM J. R. MCFARLAND, M.D., Syracuse, N. Y., to Miss Virginia Hunt of Baltimore, October 15.

FRANK M. LANDER, M.D., Enoree, S. C., to Miss Mary Eliza Matthews of Williamston, S. C., October 8.

JOHN ROBERT TACKETT, M.D., Meridian, Miss., to Miss Juanita Ayres of Columbus, Miss., October 16.

J. PARKER BLUNK, M.D., Atchison, Kan., to Miss Cora Judah of De Kalb, Mo., at St. Joseph, Mo., October 15.

OTTO LEWIS MULOT, M.D., Brooklyn, N. Y., to Miss Mary Wilkins Roebuck of Newport, Ky., October 15.

CLARENCE W. PIERCE, M.D., Los Angeles, Cal., to Miss Florence Loring Cook of Chelsea, Mass., October 22.

WILLIAM F. STEPHENS, M.D., Ashpole, N. C., to Miss Mary Pauline Willis, at Chesapeake City, October 15.

LOUIS ABRAMSON, M.D., Shreveport, La., to Miss Bella Gladys Loewenstein of Waco, Texas, October 14.

LUTHER ZWINGLI BREAKS, M.D., Chicago, to Miss Harriet Esther Hauser of Crawfordsville, Ind., October 7.

WILLIAM HENRY BOOTH, M.D., Salem, Onio, to Miss May Eunice Humphrey, of Ashtabula, Ohio, October 15.

WILLIAM H. DYER, M.D., Providence, R. I., to Miss Jeannette Elizabeth Browne of Somerville, Mass., October 7.

Herbert A. Robinson, M.D., Kenosha, Wis., to Miss Flora Hollins of Council Bluffs, Iowa, at Chicago, October 9.

Irving W. Hollingshead, M.D., Philadelphia, to Miss Florence Edith Buckingham of Worcester, Mass., October 15.

Louis G. Knox, M.D., Danbury, Conn., to Miss Blanche Evans of Aberdeen, Wash., in Jersey City, N. J., October 5.

William Dudley Hill, M.D., Harriman, Tenn., to Miss Florence Walker of Milford, Ohio, at Harriman, Tenn., October 9.

Clarke Berten Fulkerson, M.D., formerly of Three Rivers, Mich., to Miss Cora Christine Kier of Pontiac, Mich., June 25.

Clarence Martin Burnham, M.D., to Miss Mary Lydia Harroun, both of Watseka, Ill., October 15. They will reside at Chickasha, I. T.

Deaths.

Joseph **H. Van Deman, M.D.** Western Reserve University, Cleveland, Ohio, 1852, a member of the American Medical Association and one of the most esteemed physicians of the South, died at his home in Chattanooga, Tenn., October 18, after an illness of several weeks from malarial fever, aged 73. He served through the Civil war with honor and became chief surgeon a year later, and medical purveyor of the United States military railroad, division of the Mississippi. Later he was made surgeon of the refugees and freedmen's department under the United States. He was elected president of the Tennessee Medical Society in 1873, and presided over that body two years. For twenty-five years he has been a member of the American Medical Association, and was for three years, 1867 to 1869, a member of the Judicial Council. He had been a member of the American Public Health Association since 1874. The Chattanooga Medical Society held a special meeting, October 18, and passed resolutions.

William Arnold Adams, M.D. Medical College of Georgia, Augusta, 1876, one of the most distinguished surgeons in the southwest, died from fatty degeneration of the heart, at his home in Fort Worth, Texas, October 15, aged 49. Dr. Adams was among the first physicians in Fort Worth to interest himself in the establishment and perpetuation of the medical college, and was that institution's first professor of the practice of medicine. He was a former vice-president of the Texas State Medical Association; also ex-medical examiner for the Twenty-Seventh Judicial District and a member of the New York Medicolegal Society. He served in the Second Regiment of Texas Volunteers as surgeon, and at the time of his death was physician in charge of the Protestant Sanitarium at Fort Worth.

Eugene G. Carpenter, M.D. College of Physicians and Surgeons, Baltimore, 1884, superintendent of the Columbus (Ohio) State Hospital, member of the Columbus Academy of Medicine and of the American Medical Association, died from apoplexy, after an illness of two days, October 19, aged 44. His professional life had been devoted to the special study and practice of nervous and mental diseases, and he had occupied that chair in the Ohio Medical University.

Thomas Wilde, M.D. Bellevue Hospital Medical College, New York, 1866, an esteemed veteran member of the Kings County Medical Society and a surgeon of well-known ability and experience, died at his home in Brooklyn, October 5, aged 65. His death was due to concussion of the brain following a trolley-car accident in September.

John M. Brewster, M.D. Berkshire Medical College, Pittsfield, Mass., 1841, for many years a practitioner of Pittsfield, and a member of the Hampshire County Medical Society, died at his home in Pittsfield, October 15, after an invalidism of four years, consequent on a cerebral hemorrhage, aged 84.

Charles W. Bowen, M.D. College of Medicine, Syracuse (N. Y.) University, 1874, a prominent physician of Western Massachusetts, and a member of the American Medical Association, died at his home in Westfield, Mass., October 10, after an illness of four months, aged 59.

I. Newton Goff, M.D. College of Physicians and Surgeons, New York, 1858, a leading physician of Cazenovia, N. Y., died at his home in that village, October 13, from paralysis, after an illness of one week, aged 69. He was a member of the American Medical Association.

H. Marcus Schnetzler, M.D. Starling Medical College, Columbus, Ohio, 1862, one of the oldest and most esteemed physicians of Toledo, and a member of the Toledo Medical Society, died suddenly at his office in that city, October 16, from apoplexy, aged about 70.

Robert G. Rothrock, M.D. University of Nashville, Tenn., 1861, a prominent physician of Nashville, who served as surgeon of the Fiftieth Tennessee Infantry during the Civil war, died at his home in Nashville, October 9, after an illness of several months, aged 66.

Harvey W. Rainey, M.D. Long Island College Hospital, Brooklyn, N. Y., 1882, for seven years a physician in the Central Hospital for the Insane, Indianapolis, died from paresis, at his home in Indianapolis, October 15, after an illness of three years, aged 48.

Edwin F. De Graffenried, M.D. University of Pennsylvania, Philadelphia, 1846, one of the oldest citizens of Columbus, Ga., surgeon of the Fourth Alabama Infantry, C. S. Army, died at the home of his sister in Wynnton, Ga., October 5, aged 79.

Rangwald J. Gregersen, M.D. Colorado School of Medicine, Boulder, 1901, an interne in St. Joseph's Hospital, Denver, died suddenly at that institution, October 14, as the result of a fall four stories down an elevator shaft, aged 41.

William H. Edwards, M.D. Medical School of Maine, Bowdoin College, Brunswick, 1868, one of the oldest practitioners of Clearfield County, Pa., died recently at his home in Smithmills, Pa., from heart disease, after a long illness.

Chauncey Coston, M.D. Castleton (Vt.) Medical College, 1844, a veteran physician of Chillicothe, Mo., and an assistant surgeon in the Civil war, died at his home in Chillicothe, after several years of invalidism, October 19, aged 86.

Frederick R. Nordmann, M.D. College of Physicians and Surgeons, Baltimore, 1884, who had suffered for several years from nephritis and neuralgia, committed suicide by shooting himself through the head, October 21, aged 42.

Joseph R. Bradway, M.D. Rush Medical College, Chicago, 1847, a pioneer physician of Alameda County, Cal., and formerly health officer of Oakland, died at his home in that city, October 11, after a lingering illness, aged 84.

Andrew B. Bausman, M.D. Rush Medical College, Chicago, 1882, a member of the American Medical Association, died at the West Side Hospital, Chicago, October 21, from pneumonia, after an illness of one week, aged 49.

William H. Everson, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1881, of Pratt, Kan., died at St. Joseph's Hospital, Kansas City, October 9, from septic poisoning, following an operation for appendicitis.

James J. Norton, M.D. Missouri Medical College, St. Louis, 1852, of Monroe City, Mo., a member of the American Medical Association, died at his home, October 16, from paralysis, after an illness of about three months.

James M. Miller, M.D. Louisville (Ky.) Medical College, of Bloomington, died at St. Joseph's Hospital in that city, October 12, from dropsy and chronic liver disease, after an illness of ten months, aged 47.

John T. Field, M.D. Missouri Medical College, St. Louis, 1891, assistant physician at State Hospital for the Insane, No. 2, St. Joseph, Mo., died at that institution, October 7, after an extended illness, aged 34.

Marcus E. Sanborn, M.D. Medical College of Ohio, Cincinnati, 1891, of Eagle River, Wis., died at the Milwaukee Sanitarium, Wauwatosa, Wis., October 11, from uremic convulsions, aged 34.

E. P. Smith, M.D. Hospital College of Medicine, Louisville, 1890, of Cleveland, Tenn., died at Erlanger Hospital, Chattanooga, October 15, three days after an operation for intussusception, aged 42.

Clarence Martin Burnham, M.D. College of Physicians and Surgeons, Chicago,, 1902, died at his home in Watseka, Ill., October 18, from acute peritonitis, after an illness of three days, aged 21.

Elvira Ranier, M.D. Woman's Medical College of Pennsylvania, Philadelphia, 1877, secretary of the Oswego (N. Y.) County Medical Society, died at her home in that place, October 14, aged 55.

William L. Mathers, M.D. Cincinnati College of Medicine and Surgery, 1895, of Bowling Green, Ohio, coroner of Wood County, died near Fostoria, Ohio, October 8, from hepatitis, aged 41.

M. Walter Brooks, M.D. University of Vermont, Burlington, 1879, a practitioner of New York City, died at the home of

his brother in Berne, N. Y., October 14, after a long illness, aged 59.

Edwin A. W. Harlow, M.D. Harvard Medical School, Boston, 1846, a retired physician of Boston, died at his home in Wollaston, Mass., October 12, after a brief illness, aged 88.

C. E. Leaphart, M.D. Medical College of the State of South Carolina, Charleston, 1871, died at his home in that place from acute indigestion, October 6, after a short illness, aged 57.

John M. Roberts, M.D. Tulane University, New Orleans, 1881, of Atlanta, Ga., died at Jacksonville, Fla., October 12, from consumption, after a prolonged illness, aged 40.

Alfred Letourneau, M.D. Laval University, Quebec, 1886, of Alpena, Mich., a member of the Thunder Bay Medical Society, died at Arthabaskerville, P. Q., October 6.

Edgar O. Allhands, M.D. University of Louisville (Ky.), 1889, died suddenly at his home in Louisville, October 11, from heart failure following typhoid fever, aged 45.

Fred C. Sarver, M.D. Baltimore Medical College, 1895, committed suicide by taking chloroform and carbolic acid, at his home in Blocher, Ind., October 7, aged 30.

Albert Blood, M.D. Rush Medical College, Chicago, 1881, died suddenly at his home in Capron, Ill., it is supposed from wood alcohol poisoning, October 22, aged 42.

C. Edwin Poyntz, M.D. Hospital College of Medicine, Louisville, 1891, died at his home in Point Lick, Ky., October 21, from gunshot wounds received in a duel.

Lorenzo P. Barrows, M.D. Albany (N. Y.) Medical College, 1844, of Albany, N. Y., and of Sycamore, Ill., died suddenly at his home in Albany, October 12, aged 83.

John A. Buffington, M.D. Jefferson Medical College, Philadelphia, 1884, died at his home in New Windsor, Md., suddenly, from heart disease, October 17, aged 40.

John S. Cameron, M.D., one of the oldest practitioners of Defiance County, died suddenly at his home in Evansport, Ohio, October 9, from heart disease, aged 66.

Alfred P. Haynes, M.D. Omaha (Neb.) Medical College, 1889, died at his home in Wahoo, Neb., October 13, from rheumatism of the heart, aged 54.

Thomas L. Terry, M.D. Louisville (Ky.) Medical College, 1888, died at his home in Jennings, La., October 15, after an illness of several months, aged 40.

James M. Dunlap, M.D. St. Louis and Missouri Medical College, St. Louis, 1857, died at his home in High Point, Mo., September 29, aged 70.

Robert S. Gilbert, M.D. Kentucky School of Medicine, Louisville, 1867, died at his home in Oak Cliff, Dallas, Texas, September 21, aged 64.

Lytton W. Pilley, M.D. Washington University, St. Louis, 1880, died at his home in Kissimmee, Fla., October 4, after an illness of three days.

George E. Mecuen, M.D. Harvard Medical School, Boston, 1875, died suddenly at Roxbury, Mass., October 22, from meningitis, aged 59.

M. S. Derringer, M.D. of East Fairfield, Ohio, died recently at Barnesville, W. Va., insane from over-indulgence in morphin, aged 48.

Antonius A. Rowley, M.D. Rush Medical College, Chicago, 1868, died at his home in Middleton, Wis., October 2, from Bright's disease.

Daniel A. Fogarty, M.D. Bellevue Hospital Medical College, New York, 1896, died suddenly at his home in New York City, October 5.

Horace Strimple, M.D. College of Physicians and Surgeons, 1893, died at his home in Concordia, Mo., October 16, after a short illness.

Book Notices.

DISEASES OF THE ORGANS OF RESPIRATION. A Treatise on the Etiology, Pathology, Symptoms, Diagnosis, Prognosis and Treatment of the Diseases of the Lungs and Air-Passages by Samuel West, M.A., M.D., F.R.C.P., Assistant Physician and Lecturer on the Principles and Practice of Medicine at St. Bartholomew's Hospital. In Two Volumes, with Numerous Diagrams and Illustrations. Cloth. Pp. 913. Price, $10.00. London: Chas. Griffin & Co. Philadelphia: J. B. Lippincott Co. 1902.

This is a work on which the author has spent many years, and he has endeavored to include within its scope most diseases of the larynx, and practically all diseases of the trachea, bronchi, lungs and pleura. In this he has been very successful, having devoted considerable space not only to the ordinary diseases of these organs, but also to such affections as interlobular emphysema, septic embolic and hematogenous pneumonia; pulmonary infarct, embolism, and thrombosis; hysteric neuroses, diaphragmatic hernia, hernia of the lungs, syphilis of the lungs and pleura, actinomycosis, aspergillosis and coccidiosis of the lungs; hydatids and new growths of the lungs and pleura. The various diseases are treated as concisely as practicable, considering the relative importance of each subject. The author's style is terse and clear. He has not hesitated throughout the book to express his own opinions, but they have been founded on long and extensive experience and usually they are supported by ample evidence. He takes issue with the commonly accepted theories regarding pneumothorax and bronchopneumonia, but sets forth in detail the grounds for his conclusions. He has consulted carefully the literature of the day and his work expresses the most modern thought on the diseases of which it treats. There are numerous illustrations that aid much in the comprehension of the text and frequently short clinical accounts are inserted to illustrate some special points in the consideration of individual diseases. The subject-matter is well arranged and the reader who wishes to make quick reference to any article is greatly aided by the bold-faced type which marks the various subdivisions. The type as a whole is not so large as desirable; however, it is clear and it has enabled the publisher to compress a great deal into the limits of the two volumes, 913 pages. All in all, we can heartily commend the work.

DISEASES OF THE RECTUM AND ANUS. Designed for Students and Practitioners of Medicine. By Samuel Goodwin Gant, M.D., LL.D., Professor of Rectal and Anal Surgery at the New York Post-Graduate Medical School and Hospital. Second Edition, Rewritten and Enlarged. With 37 Full-page Plates, 20 of Which Are in Colors, and 212 Smaller Engravings and Half-tones. Cloth. Pp. 687. Price, $5.00. Philadelphia: F. A. Davis Co. 1902.

The subject of rectal diseases has recently been receiving more attention than in the past, and Gant, in this book, has presented the latest knowledge in a practical manner for the general practitioner as well as for the specialist. Several chapters and illustrations have been added in this revision.

Miscellany.

The Family Physician.—It is amusing to read and hear of the passing of the family physician. There never was a time in our history in which he was so much in evidence, in which he was so prosperous, in which his prospects were so good or his power in the community more potent. The public has even begun to get sentimental over him! He still does the work; the consultants and the specialists do the talking and the writing—and take the fees. By the work, I mean that great mass of routine practice which brings the doctor into every household in the land and makes him, not alone the adviser, but the valued friend. He is the standard by which we are measured. What he is we are; and the estimate of the profession in the eyes of the public is their estimate of him. A well-trained sensible doctor is one of the most valuable assets in a community, worth to-day, as in Homer's time, many another man.—Osler.

Quackery and Religion.—It is with great regret, says the *Cleveland Medical Journal*, that we notice in a copy of the *Midland Methodist* a full-page advertisement of one of the most widely known quacks in Ohio. Not alone is this advertiser a quack, but he is unregistered and uneducated. Still he manages to practice by employing registered physicians who are willing to lend themselves to the enterprise, whose character has been clearly shown in evidence given at various trials in court. In spite of this fact the *Midland Methodist* gives a whole page to the exploitation of this effort to prey upon the afflicted and equal space to forwarding the use of a "remedy" which is simply a disguised whisky. The spectacle of a religious paper carrying an advertisement that is in effect an invitation to its readers to cultivate liquor-drinking is remarkable, but unfortunately not unique. It is curious, indeed, that the religious press appears to be as a rule so conscienceless in accepting advertisements.

Censure for Australian Advertising Physicians.—During the king's illness some of the leading Australian doctors

and surgeons supplied the Sidney and Melbourne papers with comments and forecasts and descriptions of the malady, its causes and effects, mode of treatment, etc. According to the *London Chronicle*, they are to be reported to the British Medical Association and the Royal College of Surgeons on the ground that they had violated professional ethics and committed the unpardonable sin of self-advertisement. As one of their critics says: "This sort of thing is far and away better than a double column advertisement in the pages ordinarily devoted to that purpose." It is urged in some of the commonwealth papers that the unwritten law preventing well-qualified doctors and surgeons from advertising is an absurd anachronism, and leads to all sorts of ignorant and unscrupulous quacks flourishing at the expense of a credulous and ill-informed public.

A Method of Introducing the Stomach Pump.—An effective and entirely safe method of preventing nausea occasioned by the stomach pump is that of freezing two or three inches of the extremity of the tube just prior to its introduction, the object being to secure slight temporary anesthesia of the fauces and pharynx by means of the cold rubber. In this way cold is applied exactly where anesthesia is needed, and the irritability is overcome. Thus the tube may be introduced for the first time with practically no gagging, straining or nausea. The extremity of the tube may be frozen by a few moments' spraying with ethyl chlorid. The tube, of course, may be chilled in other ways, but the ethyl chlorid is convenient and efficient. The tube has been found not to stiffen markedly under the influence of extreme cold, so no violence from the frozen rubber can occur. And by the time the tube reaches the cardia its low temperature is sufficiently overcome to prevent any danger to the gastric mucosa, though the tube may remain in the stomach some time.—From *Ther. Gazette* in *Med. Fortnightly.*

Purifying Milk by Pressure.—To investigate the effect of pressure on bacteria an apparatus has been devised which is remarkable for having produced what is probably the greatest hydrostatic pressure ever reached—over 450,000 pounds per square inch. The particular object of these experiments was to determine whether the bacteria in milk might not be killed by hydrostatic pressure, so that it would keep a longer time without souring. Moderate pressures were first tried, but appeared to have no effect. The pressures were then increased and notable results were obtained. Milk subjected to pressures of 70 to 100 tons kept from twenty-four to sixty hours longer without souring than milk which had not been subjected to compression. The degree to which the keeping qualities of milk were improved appeared to depend as much on the time for which the pressure was maintained as on the actual pressure reached. Pressures of ninety tons per square inch maintained for an hour prevented milk from souring for from four to six days. Complete sterilization of the milk, however, was in no case effected, even at the highest pressures, and the milk in many cases acquired peculiar tastes and odors on keeping, indicating that certain species of bacteria were killed while others were not.—*Practical Druggist.*

Medical Practice in China.—The *Literary Digest* gives an interesting account of Chinese medical practice from an article by Pastor Stenz, a German missionary long resident in China, in the New York *Staats-Zeitung*. It seems that no license or special course of study is necessary for practice there. The official course of study is supposed to fit a man to be anything from a judge to a general, and many of the physicians are students who have failed to pass the government examination. Most of them, however, have taken lessons from experienced physicians and apothecaries.

"When a Chinaman falls ill and can not visit the physician, he sends a cart or an ass to fetch the latter, for no physician of repute will visit patients on foot. Having arrived at the house the physician is first regaled with tea, stronger liquors and sweetmeats, or, if the journey has been long, an elaborate meal is set before him, and he pays not the slightest attention to his patient, even in an 'emergency case' until his appetite is satisfied. The writer cites the case of a European friend who had dislocated his arm and was in great pain, but the doctor calmly finished his repast before entering the sick-room. On seeing the patient the doctor asks a few general questions, the most important of which appears to be whether the patient can still eat or how long he has gone without food. Then the doctor sits feeling the patient's pulse and meditating for five or ten minutes, after which he names the malady, writes a prescription, and goes away. Diagnosis by the pulse alone seems ridiculous, but European physicians have had occasion to marvel at the results of the method in Chinese hands.

"Chinese physicians receive no fees, though gifts are sometimes made to them after successful treatment. On the other hand, most of them are their own druggists, and, if not, they get commissions on their prescriptions. The prescriptions are very complex, often containing twenty ingredients, which, however, are put up separately. Most medicines are exhibited in the form of copious hot draughts and are bitter and exceedingly nauseous. Most of them are of vegetable origin. Ginseng is the most highly prized and enters into almost every prescription.

"But the Chinese physician does not depend wholly on drugs. Massage is much used, particularly in affections of the head and stomach. In severe cases the treatment is heroic, for the operator kneels on the patient's abdomen.

"Another favorite treatment is acupuncture, or the insertion of needles. The medical student practices on a manikin covered with little holes, and must learn to plunge the needle accurately into the right ones for the treatment of various diseases. As the needle is often inserted more than an inch into the body, it is evident that the exact location of the puncture is a matter of some importance. Father Stenz submitted to this treatment also—for obstinate and long-continued nausea. The physician discovered dark spots under the tongue, punctured them, let out a quantity of dark-colored blood, and cured the patient.

"Vaccination in the European manner is in general use. Vaccination is said to have been practiced for more than a thousand years, but the original method, according to an old book, seems to have consisted in applying to the nostrils of children annually the dried and powdered scabs of smallpox sores.

"The Chinese have excellent teeth and little use for dentists. The use of the forceps in extracting is unknown. Aching nerves are killed by inserting into the cavity a castor-oil bean heated to the burning point.

"Though physicians are not licensed, there are official unsalaried physicians, corresponding to our coroners, whose duty it is to examine and give death certificates in cases of sudden death. Their reports depend largely on the financial ability and liberality of suspected persons. In Peking there is a medical council of eighteen which is supposed to supervise the practice of medicine throughout the empire. Its members are physicians to the court and the imperial family."

Clippings from Lay Exchanges.

PRESIDENTIAL PERITONEAL EXTENSION.

In the description of the recent operation on President Roosevelt it is thus written:

"A little surgical appliance like the end of a syringe drawn to a fine point was inserted in the swelling which stood out on the President's shin midway between the knee and ankle. A miniature pump was attached, the cavity under the peritoneum was emptied 'by aspiration,' as the doctors say—which is another term for pumping—and it was all over.

"Not even a President can have edged tools inserted in his tissues beyond the wrappings of the bones itself, which are called peritoneum, without feeling it."—*Chicago Record-Herald*, Sept. 27, 1902.

Later: "At Indianapolis nothing was done but to insert an inspirating needle to draw off the serum."—*Chicago Record-Herald*, Sept. 30, 1902.

EPIDEMIC OF FAT OUTSIDE THE HEART.

"Dr. —— returned Wednesday from San Francisco, where he went to be operated upon for hernia. Just as the physicians were about to give him chloroform an examination showed his heart to be covered with fat on the outside. Chloroform would have cost him his life. He must diet for weeks to reduce the fat.

"Dr. —— learned that Nellie —— died at Oakland Saturday under exactly the same circumstances.

"Physicians about the bay have taken warning."—*Redding* (Cal.) *Free Press*, Dec. 11, 1901.

INCREASE OF INSECTED AREA.

"Larger than these two is the increase of the insected area over that of last February. . . . All stories to the effect that vaccine lymph is cecured in any other manner are the products of ignorance or willful misrepresentation."—*Covington* (Ind.) *Friend*, March 14, 1902.

A PAST MASTER.

"Dr. ——'s new position is called 'past master in surgery,' and it gives him the rank of lieutenant on the training ship Dorothea."—*Daily News* (Chicago), August 3, 1901.

PHYSIC AND REAL ESTATE.

"Dr. ——, having graduated in Medicine, will now open an office with the N. P. people, Chicago, for the sale of North Dakota lands."—*Bismarck* (N. D.) *Tribune*, March 22, 1902.

CARDIAC MIGRATION.

"A—— B——, . . . is having his heart moved to his left side from the right side, where it had worked its way."—*Covington* (Ky) *Post*, May 17, 1902.

GASTRIC ULCERATION OF THE STOMACH.

"Gastric ulceration of the stomach, say these doctors, is not confined to men, but is afflicting women also to a great extent."—*Sacramento* (Cal.) *Record-Union*, May 8, 1901.

MUCH DECIMATED.

Canal, Jan. 6.—We are having an epidemic of scarlet fever and scarletina. Several of our schools are very much decimated."—*Franklin* (Ky.) *News*, Jan. 7, 1902.

SUPERFOCATION.

"'A Case of Superfocation' was given by Dr. —— of Witt."—*Chicago* (Ill.) *Chronicle*, Oct. 30, 1901.

Medical Organization.

There is no subject of more vital importance to the medical profession at the present time than that of organization. Since the St. Paul meeting of the Americal Medical Association, when the reorganization of that body was adopted, the subject has been taken up by more than half of the state societies and quite a number have already adopted the plan recommended by the national association. Other states have appointed committees on reorganization, and during the next year we may expect to see that two-thirds of the state societies have adopted a constitution on a more or less uniform plan.

All the state bodies that have reorganized have committees or councilors appointed for the purpose of creating county societies. A few of the workers thus appointed are men of experience. Others are anxious to succeed in what they are trying to accomplish, but are too often at a loss to know how to proceed. They want to learn.

There are important questions to be settled, and a thorough discussion is desirable.

For these and other reasons we propose to devote a department in THE JOURNAL to the subject of organization in which we hope to stimulate and encourage those who are now working and awaken an interest in those who do not yet realize the importance of a more systematic organization than has heretofore existed. We hope to be able to print reports of progress from every part of our country, and for this purpose we ask for all news bearing on the subject.

CONSTITUTION FOR STATE AND COUNTY SOCIETIES.

The Committee on Organization of the American Medical Association has prepared a constitution for state societies and one for county societies, each of which is issued in pamphlet form. As we propose to report what each state has done with this constitution, what amendments or additions have been or may be made, and the same with county societies, we suggest that those interested obtain a copy of each of these pamphlets so that they may be able to understand and appreciate the references made to them. We shall be glad to send these constitutions for state and county societies on receipt of application and a 2c. stamp to cover mailing.

THE REORGANIZATION OF THE MICHIGAN STATE MEDICAL SOCIETY.

DETROIT, MICH.

To the Editor:—During the year 1901 Dr. Leartus Connor, president of the society for that year, submitted to a committee on organization, consisting of Dr. A. E. Bulson of Jackson, Dr. George Dock of Ann Arbor, and Dr. Charles T. McClintock of Detroit, the plan of organization suggested by the American Medical Association. With some amendments made to meet the conditions in this state and to which I shall draw attention later, the Constitution and By-Laws recommended for the State Societies by the American Medical Association was unanimously adopted by the State Society at its annual meeting last June.

The society provides for:

1. The retention till death of members of long standing and faithful service, by making them resident honorary members:

ARTICLE IV.

SEC. 4. *Honorary Members.*—Honorary members shall be of two classes, resident and non-resident.

SEC. 5. Resident Honorary Members shall be chosen from those who have practiced medicine not less than *thirty* years and have been active members in good standing in this society for at least *ten* years. They shall be nominated by the Council at any of its meetings, and may be elected by the House of Delegates at the annual meeting following such nomination. They shall have all the privileges of the society and receive all publications without the payment of dues. Not more than five Resident Honorary Members shall be elected at any one meeting.

SEC. 6. Any distinguished physician, not a resident of this state, may be elected an Honorary Member, provided he has been nominated by the Council at a previous meeting. Not more than two Non-resident Honorary Members shall be elected at any one meeting.

2. A monthly journal instead of the Annual Transactions.

3. Reciprocity of membership among state societies.

ARTICLE X.—RECIPROCITY OF MEMBERSHIP AMONG STATE SOCIETIES.

To broaden professional fellowship among the state societies, the Michigan State Medical Society, by its President and Secretary, is ready to arrange with other state medical societies, having equal requirements, for the interchange of certificates of membership. Members removing from one of these states to another may thus avoid the formalities of re-election.

4. A Board of Councilors, consisting of 12 members, one chosen from each congressional district—which is patterned after the Board of Trustees of the American Medical Association—to which is given the superintendence of the Journal, the control of the finances of the Society, the organization and nurture of the County Societies, the selection of the Secretary and Treasurer, the nomination of the honorary members. The Councilors are elected for six years, two being elected each year. The Council holds a meeting also in January.

5. The division of the Society into three Sections, one on General Medicine, one on Surgery, Ophthalmology and Otology, and one on Obstetrics and Gynecology.

6. The popular election of the President by the general society; of the Secretary and Treasurer by the Council at its January meeting.

7. Special effort is made to make use of the experience and energy of all the officers. In so far as possible, the Vice-Presidents are selected with especial reference to the promotion of the work of the Councilors in the three Districts nearest their respective residences.

8. The membership in the County Society is limited, as follows:

CHAPTER XIII.

SEC. 5. Each County Society shall judge of the qualifications of its own members; but, as such societies are the only portals to this society and to the American Medical Association, every reputable and legally registered physician who is practicing, or who will agree in writing over his own signature to practice, non-sectarian medicine only, and to sever all connections with sectarian colleges, societies and institutions, shall be entitled to membership. Before a charter is issued to any county society, full and ample notice and opportunity shall be given to every such physician in the county to become a member.

The Secretary of each County Society makes his report of the physicians in his county to the Councilor of his District by the first day of January.

SEC. 11. At the first meeting after January 1, due notice having been given, each county society shall elect annually a delegate or

delegates to represent it in the House of Delegates of this society in the proportion of one delegate to each FIFTY members or major fraction thereof. The Secretary of the county society shall immediately send the list of its delegates to the Secretary of this society.

SEC. 12. The Secretary of each county society shall keep a roster of its members, and a list of the non-affiliated registered physicians of the county, in which shall be shown the full name, address, college and date of graduation, date of license to practice in this state, and such other information as may be deemed necessary. He shall annually furnish an official report containing such information, upon blanks supplied him for the purpose, to the Councilor of his District by the *first day of January*. In keeping such roster the Secretary shall note any changes in the personnel of the profession by death, or by removal to or from the county, and in making his report shall be certain to account for every physician who has lived in the county during the year.

COUNCILORS.

The state is divided into twelve councilor districts, one member from each congressional district.

1st—Leartus Connor, Chairman, Detroit.
2d —N. H. Williams, Jackson.
3d —W. H. Haughey, Secretary, Battle Creek.
4th—G. W. Lowry, Hastings.
5th—J. B. Whinery, Grand Rapids.
6th—C. B. Burr, Flint.
7th—Oliver Stewart, Port Huron.
8th—S. I. Small, Saginaw.
9th—B. H. McMullen, Cadillac.
10th—H. B. Langdon, Bay City.
11th—W. T. Dodge, Big Rapids.
12th—Theo. A. Felch, Ishpeming.

COUNCILOR DISTRICTS.

The Councilor Districts comprise the following Counties respectively.

First Councilor District—Wayne County.
Second Councilor District—Jackson, Lenawee, Monroe, and Washtenaw.
Third Councilor District—Branch, Calhoun, Eaton, Hillsdale, and Kalamazoo.
Fourth Councilor District—Allegan, Barry, Berrien, Cass, St. Joseph, and Van Buren.
Fifth Council District—Ionia, Kent, and Ottawa.
Sixth Councilor District—Genesee, Ingham, Livingston, and Oakland.
Seventh Councilor District—Huron, Lapeer, Macomb, Sanilac, and St. Clair.
Eighth Councilor District—Clinton, Saginaw, Shiawassee, and Tuscola.
Ninth Councilor District—Benzie, Lake, Leelanau, Manistee, Mason, Muskegon, Newaygo, Oceana, and Wexford.
Tenth Councilor District—Alcona, Alpena, Arenac, Bay, Cheboygan, Crawford, Emmet, Gladwin, Iosco, Midland, Montmorency, Ogemaw, Oscoda, Otsego, and Presque Isle.
Eleventh Councilor District—Antrim, Charlevoix, Clare, Grand Traverse, Gratiot, Isabella, Kalkaska, Mecosta, Missaukee, Montcalm, Osceola, and Roscommon.
Twelfth Councilor District—Alger, Baraga, Chippewa, Delta, Dickinson, Gogebic, Houghton, Iron, Isle Royale, Keweenaw, Luce, Mackinac, Marquette, Menominee, Ontanogan, and Schoolcraft.

At the time of the adoption of the new Constitution, the following County Societies were in affiliation with the State Society:

The Bay County Medical Society.
Berrien County Medical Society.
Calhoun County Medical Society.
Cass County Medical Society.
Cheboygan County Medical Society.
Clinton County Medical Society.
Jackson County Medical Society.
Lenawee County Medical Society.
Medical Association of Barry and Eaton Counties.
Ontonagan County Medical Society.
Saginaw County Medical Society.
Washtenaw County Medical Society.
Wayne County Medical Society.

Upon the adoption of the new Constitution and By-Laws, the relationship between the State Medical Society and the County Society became real instead of nominal. In the counties in which the local societies were already organized, application to the State Society for a charter must be made anew.

When the charter is granted, the County Society becomes a branch of the State organization. The members become by virtue of this charter members of the State Society and eligible on application to membership in the American Medical Association.

NEW SOCIETIES.

Since the reorganization the following County Societies have been chartered:

First District—Wayne.
Second—Jackson, Lenawee, Washtenaw and Monroe.
Third—Branch, Calhoun, Eaton, Hillsdale, Kalamazoo and Berry.
Fourth—Berrien and Cass.
Fifth—Ionia.
Sixth—Livingston, Oakland and Ingham.
Seventh—Lapeer and Clinton.
Eighth—Saginaw.
Ninth—Wexford and Mason.
Tenth—Bay, Crawford, Montmorency, Ogemaw, Oscoda and Otsego.
Eleventh—Mecosta, Montcalm, Roscommon, Isabella and Grand Traverse.
Twelfth—Houghton.

As the counties of Ogemaw, Montmorency, Crawford, Oscoda, Roscommon and Otsego are thinly populated and are adjacent, the physicians thereof have united in forming a County Society known as the O. M. C. O. R. O. County Society, which formation is permitted by the By-Laws of the State Society.

All the Councilors of the Districts have entered into their work with an enthusiasm worthy of the cause, and they have been successful beyond expectation. To aid them the Vice-Presidents were selected with especial reference to their fitness for this work. To the First Vice-President, Dr. J. C. Wilson of Flint is given the supervision of the First, Sixth and Seventh Districts.

To the Second Vice-President, Dr. A. W. Crane of Kalamazoo, is given the Second, Third and Fourth Districts.

To the Third Vice-President, Dr. W. K. West of Calumet, is given the Upper Peninsula or Twelfth District.

To the Fourth Vice-President, Dr. H. B. Garner, of Traverse City, is given the Fifth, Ninth and Eleventh Districts.

To the President, Dr. A. E. Bulson, of Jackson, is given the Eighth and Tenth Districts.

To Dr. Bulson, the President of the Society, to Dr. Leartus Connor of Detroit, Chairman of the Council, and to Dr. W. H. Haughey, Battle Creek, Secretary of the Council, special credit must be given. One or two of them visited the Councilor of the respective Districts, the meeting of every society, explaining to the members the necessity and the method of organization.

I think I may safely say that since the American Medical Association has issued its earnest call for the organization of the medical profession, no state has entered on the work with a better realization of the need of organization, with a fuller responsibility of the work to be done and with greater success. We hope by the end of the year to have at least thirty counties chartered.

Our aim has been to make the State Society and the County Societies as attractive as possible and to provide the machinery for the conveying of this knowledge to all the members of the profession. Respectfully,

A. P. BIDDLE, Secretary.

[Dr. Biddle has given praise to others deserving it, but he, as secretary, should have special mention. Michigan is to be congratulated on having many faithful workers, not the least of whom is its secretary.]

In a private communication, one of the active workers in the Michigan State Society says:

"I am growing more convinced that the only way for success in medical organization is the promotion of the spirit which helps all, especially the rank and file of the profession, who rarely get out of the county in which they begin practice. In our work in Michigan, success is assured, as individuals grasp it. They are full of thanks for a state organization, which has stimulated them to form a county society—all their own—with officers all their own and a chance to send a delegate who will meet on equal terms with the delegates from the wealthy centers; that has established a journal in which they have a part ownership, and through which their isolation may be transformed to a constant companionship with every other part of the state and the medical world; that is trying to make such arrangements that their membership in the Michigan societies shall be a practical membership in as many states as have the same requirements as Michigan; that has arranged that when they grow feeble or old, or poor, they shall be retained as hon-

orary members till death; that has picked out men to help them not only in society organization, but will constantly help them when difficulties assail them; in short, a society which provides the means to make their lives pregnant with hope, and larger success in all their undertakings. It is clear that larger gains will come to those able to do more skilful service in exceptional cases, and so the gain will be universal."

CHICOT COUNTY (ARK.) MEDICAL SOCIETY.

This society has been organized in accordance with the suggestions of the American Medical Association. Every physician in the county is a member. The following officers were elected: Dr. Alexander G. Anderson, Carmel, president; Dr. Robert N. Henry, Lake Village, vice-president; Dr. M. M. Norton, Sunnyside, treasurer, and Dr. Edward P. McGehee, Luna Landing, secretary.

M'CRACKEN COUNTY (KY.) MEDICAL SOCIETY.

At the first meeting of this society since its reorganization, which was held in Paducah, October 7, the constitution and by-laws proposed by the American Medical Association for county organizations were adopted.

HENRY COUNTY (TENN.) MEDICAL ASSOCIATION.

This society met at Paris, October 8, and reorganized by electing Dr. A. F. Paschal, Cottage Grove, president; Dr. Richard A. Grainger, vice-president; Dr. John H. McSwain, Paris, secretary. The association unanimously adopted as its by-laws and constitution those advised by the American Medical Association.

SUMMIT COUNTY (OHIO) MEDICAL SOCIETY.

A meeting of this society was held in Akron, October 7. Dr. John H. Seiler, Akron, read a paper on the reorganization of the society, and a committee was appointed to revise the present constitution of the society to make it conform with that of the Ohio State Medical Society.

MASON COUNTY (MICH.) MEDICAL ASSOCIATION.

This association was reorganized at Ludington, September 30, under the new laws of the Michigan State Medical Society, by the newly-appointed councilor for the Ninth Congressional district, Dr. Bartlett H. McMullen, Cadillac.

SAN JOAQUIN VALLEY (CAL.) MEDICAL SOCIETY.

The fourteenth regular semi-annual meeting of this society was held in Bakersfield, October 14. The election of officers resulted as follows: President, Dr. J. L. Carson, Bakersfield; vice-presidents, Drs. Angus B. Cowan, and Joseph D. Davidson, of Fresno, and Henry E. Southworth, Stockton; secretary, Dr. William S. Fowler, Bakersfield; assistant secretary, Dr. Dwight H. Trowbridge, Fresno, and treasurer, Dr. Thomas M. Hayden, Fresno. A committee of three was appointed for the revision of the constitution and by-laws so that they will correspond with those of the American Medical Association.

LOW FEES.

KALAMAZOO, MICH., Oct. 27, 1902.

To the Editor:—I have read the letter in your issue of the 25th inst., entitled "Organization," by Dr. Todd. It is a fact that the members of the medical profession receive smaller fees than those of any other profession. Why is this so? In my experience I have found very few physicians who know much about business, and I believe this is the trouble. I have known men who belong to medical societies which have a fee bill but who do not adhere to it. I know physicians with excellent reputations who examine a patient and furnish medicine for the "exorbitant" price of thirty-five pennies. I do not pretend to say all physicians do this, but you will find only occasionally a man who charges enough. The problem is: How are we to remedy this evil?

Certainly most patients do not give credit for small charges. The quacks get large fees for trivial things, and the patients say: "He did me good."

Several years ago I knew a physician who attended a case of fracture of the femur; his fee was $100, and he got it. The patient was perfectly satisfied until a brother practitioner told him it was far in advance of the regular fee. When physicians are continuously knocking each other what can we expect from our patients and what fees can we expect to receive? Just as long as this state of affairs exists the medical fees will be small and quacks increase.

G. C. McVOY.

GARLAND COUNTY HOT SPRINGS MEDICAL SOCIETY.

We are pleased to announce that the Hot Springs Medical Society, at its last meeting, September 18, adopted the constitution and by-laws as formulated by the committee of the American Medical Association for the organization of county societies. The society will be known as the Garland County Hot Springs Medical Society, and every effort will be made to increase its membership by the addition of desirable and eligible men located in the county. The society hopes through indefatigable efforts to make itself a credit to the state and to the national society and thus through its merits as worker receive the support of the medical profession throughout the country.—*Hot Springs Medical Journal*, October.

UNION OF TWO OPPOSING ORGANIZATIONS.

The physicians of Rock Island, Ill., have been seriously divided through rival organizations—the Rock Island County Medical Association and the Rock Island County Medical Society. For some time unsuccessful efforts were made to unite the factions, but last week the union was brought about through the personal efforts of the president of the state society, Dr. M. L. Harris. The two old societies disbanded and a new body, to be known as the Rock Island County Medical Association, was organized, all the members of the old organizations going into the new as charter members. The officers elected are: President, Dr. Albert M. Beal, Moline; vice-presidents, Drs. William R. Freek, Cordova, and Arthur D. West, Moline; secretary, Dr. Emma Morgan, Rock Island; treasurer, Dr. Louis Ostrom, Rock Island, and official reporter, Dr. George L. Eyster, Rock Island. The physicians of Rock Island County are to be congratulated on the happy outcome, and as the county is one of the important ones in the state, a large, active and successful organization may be looked for.

Societies.

COMING MEETINGS.

Oklahoma Territory Medical Association, Guthrie, Nov. 11, 1902.
Southern Surgical and Gynecological Association, Cincinnati, Nov. 12-14, 1902.
Tri-State Medical Society of Mississippi, Arkansas and Tennessee, Memphis, Tenn., Nov. 11-13, 1902.
Indian Territory Medical Association, Muskogee, Dec. 2-3, 1902.
Western Surgical and Gynecological Association, St. Joseph, Mo., Dec. 29, 1902.

Brookfield (Mass.) Medical Club.—This club held its annual meeting at Warren, October 15. Dr. Frederick W. Cowles, West Brookfield, was elected president; Dr. James C. Austin, Spencer, vice-president, and Dr. William F. Hayward, East Brookfield, secretary and treasurer.

Detroit (Mich.) Academy of Medicine.—At its annual meeting, held at the residence of Dr. Arthur D. Holmes, the academy elected Dr. Robert W. Gillman, president; Dr. Alvah N. Collins, vice-president; Dr. Harrison D. Jenks, secretary-treasurer, and Dr. Leartus Connor, director.

Cheshire County (N. H.) Medical Society.—The annual meeting of this society was held at Keene, October 14. Dr. James A. Craig, Westmoreland, was elected president; Dr. Frank M. Dinsmoore, Keene, vice-president, and Dr. Charles W. Harrington, Peterboro, secretary and treasurer.

McDonough County (Ill.) Medical Society.—This society held its annual meeting in Macomb, October 7. The following officers were elected: Dr. Henry Knappenberger, president; Drs. Samuel C. Stremmel and Robert E. Lewis, vice-presidents, and Dr. Arthur D. Pollock, secretary and treasurer, all of Macomb.

Marion County (Ore.) Medical Society.—The physicians of Marion County formed a county medical society, October 18, and elected the following officers: President, Dr. Calvin S. White, Gervais; vice-president, Dr. Charles H. Robertson, Salem; secretary, Dr. W. C. Smith, Turner, and treasurer, Dr. Mary M. Staples, Salem.

Strafford District (N. H.) Medical Society.—This society held its annual meeting for the election of officers and business at Dover, October 8. The following officers were elected for

1903: President, Dr. John H. Neal, Rochester; secretary, Dr. Louis W. Flanders, Dover; treasurer, Dr. A. Noel Smith, Dover, and auditor, Dr. Allen P. Richmond, Dover.

El Paso County (Texas) Medical Society.—The fourth annual meeting and banquet of this society were held in El Paso, October 11. Dr. Walter N. Vilas officiated as toastmaster, and was also elected president; Dr. Augustus L. Justice was elected vice-president; Dr. Junius A. Rawlings, re-elected secretary, and Dr. Gottlieb Wehrle, treasurer, all of El Paso.

Rice County (Minn.) Medical Society.—The physicians of Rice County held a meeting in Faribault, October 2, and organized this society, and elected officers as follows: President, Dr. Francis M. Rose, Faribault; vice-presidents, Drs. William A. Hunt, Northfield, and Roscoe N. Jackson, Faribault; secretary, Dr. Fred Huxley, Faribault, and treasurer, Walter H. Robilliard, Faribault.

Ionia County (Mich.) Medical Society.—This society was organized, October 8, at Ionia, with the following officers: President, Dr. Charles S. Cope, Ionia; vice-presidents, Drs. Fred L. Morse, Sebewa; William H. Flint, Clarksville, Charles B. Gauss, Palo, and William A. Wilkinson, Orleans; secretary, Dr. Frank W. Braley, Saranac, and treasurer, Dr. George A. Stanton, Belding.

Central Indiana Medical Association.—This association was incorporated at Anderson, October 22, with a capital stock of $2000. Its object is, among other things, the publication of the *Central Indiana Medical Journal.* The officers are: President, Dr. John W. Hunt; vice-presidents, Drs. William J. Fairfield and Horace E. Jones; secretary and treasurer, Dr. Samuel C. Norris.

Jackson County (Mo.) Medical Society.—This society met at Kansas City, October 9, and elected the following officers for the ensuing year: President, Dr. Walter S. Wheeler; vice-president, Dr. James W. Parker; secretary, Dr. Edward H. Thrailkill; treasurer, Dr. Louis W. Luscher; censor, Dr. William F. Kuhn; and librarian, Dr. Maggie L. McCrea, all of Kansas City.

Military Tract (Ill.) Medical Society.—This society held its annual session in Monmouth, October 16 and 17, and was the guest of the physician's club of that city. The following officers were elected: President, Dr. James E. Coleman, Canton; vice-presidents, Drs. Harrison C. Hopper, Galesburg, and William S. Holliday, Monmouth, and secretary and treasurer, Dr. Charles B. Horrell, Galesburg, re-elected.

French Congress of Neurology.—The president of the next French Congress of Neurologists and Alienists is to be Francotte of Liège. It will meet at Brussels in August, 1903. The secretary-general is J. Crocq of Brussels. The following questions will be discussed: "Histology of General Paralysis," address by Klippel; "Treatment of Insomnia and Agitation in Mental Diseases," address by Trenel, and "Administration of Insane Asylums," address by Claus.

Henry County (Ill.) Medical Society.—This society met for the first time since its revival, at Cambridge, October 7. Dr. John A. Kirkland, Cambridge, was made temporary chairman, and Dr. Harry W. Waterous, Galva, temporary secretary. Soon after the temporary organization had been effected the following officers were chosen to compose the permanent organization: President, Dr. Lemuel A. Ferry, Geneseo; vice-president, Dr. William H. Cole, Kewanee; secretary, Dr. Harry W. Waterous, Galva, and treasurer, Dr. John A. Kirkland, Cambridge.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

Proceedings of the Twenty-eighth Annual Meeting, held at Kansas City, Mo., Oct. 15 to 17, 1902.

Under the Presidency of Dr. S. P. Collings, Hot Springs, Ark.

(Concluded from page 1067.)

Operations for Cancer of the Mouth and Neck.

Dr. George W. Crile, Cleveland, Ohio, delivered the address in surgery. His summary is as follows: In the past three decades there has been a continuous decrease in the operative mortality, and with a single exception of the brachiogenic cancers, even a more notable increase in the percentage of cures. The supreme importance of early diagnosis, and early and radical operation, is becoming widely recognized. Except in cancer of the upper jaw, the disease is now regarded as involving the regional lymphatic system and rarely extends to other parts of the body. Severing the thoracic duct causes but little disturbance, owing to its free anastomosis. The effect of resection of the internal jugular vein is practically *nil.* Unilateral resection of the vagus does not alter the heart's action, the respiration nor the digestion, but produces a permanent hoarseness only. Division of the superior laryngeal causes anesthesia of a part of the larynx, but pneumonia is improbable; division of the inferior laryngeal causes paralysis of the corresponding vocal cord; but interference with respiration is not marked; division of the spinal accessory has but slight effect on account of the double nerve supply to the sternomastoid, and the synergistic action of other muscles; division of the hypoglossal causes temporary interference with speech and swallowing, but compensation occurs; the submaxillary and salivary glands may be removed without symptoms; the removal of the sternomastoid muscle is not followed by torticollis, etc., on account of the synergistic action of other muscles. The complete removal of the lymphatic system of one side does not produce pseudo-elephantiasis of the face and head. Permanent closure of the external carotid has an operative mortality of 1 to 2 per cent., due to thrombosis and embolism. Permanent closure of the common carotid or internal carotid is attended by an operative mortality of about 3 per cent., but in the cancer period of life from 20 to 30 per cent. of cerebral complications follow, about 50 per cent. of which prove fatal. Temporary closure of the carotid by means of a special clamp, as shown in the writer's 43 cases, in which neither death nor cerebral complications occurred, is both efficient and safe. These physiologic and clinical data lead to but two objective points in unilateral operations for cancer of the mouth or neck, namely, complete removal of the disease and preservation of the blood supply to the brain. If necessary, sacrifice every other structure between the skin and the place of the deep muscles of the neck. Loss of blood is the greatest operative difficulty and danger. If hemorrhage is likely to be considerable, the common carotid should be closed during the operation. In the mouth cases, an anesthetic may be administered through rubber tubes passed through the nostrils to the level of the epiglottis, with the tongue well drawn forward. The pharynx may then be packed with gauze, so as to form an air-chamber in the lower larynx effectively, and prevent blood from entering the pulmonary tract. The dissection should be made on the same plan and as thoroughly as in the radical operation for cancer of the breast. The greater ease and certainty with which diagnosis may be early made in this region, the rarity of extension of the disease beyond the glands of the neck, should enable the surgeon to obtain even better results here than in cancer of the breast. The hope of the patient lies in early diagnosis, early operation, and a logical technic.

Cancer and Strictures of the Rectum.

Dr. Emerson M. Sutton, Peoria, Ill., read a paper on cancer of the rectum and reported cases.

Dr. Emil Ries, Chicago, pointed out the difficulties in treating rectal strictures. He referred to septic conditions, anatomic changes and the danger of recurrence.

Ureteral Catheterism; Its Value in Male and Female.

Dr. Bransford Lewis, St. Louis, read a paper on this subject, which will appear in The Journal.

Dr. B. F. Gillmer, Creston, Iowa, discussed the mechanical problem of intubation and emphasized the importance of acquiring manual familiarity with instruments.

Laminectomy for Fracture Dislocation of Vertebrae.

Dr. Joseph Rilus Eastman, Indianapolis, said that laminectomy for fracture or dislocation should be made early. The longer pressure had existed, the more extensive the degeneration of the cord. Laminectomy per se is not dangerous. It represents the surest method of diagnosis of fracture-dislocation, and the most rational and efficient means of relief.

Extrinsic Traumatisms of the Spine.

Dr. Thomas H. Manley, New York, said that the most frequent injuries were external to the spinal cord. They are rarely of such a character as to seriously impair function, although deformity and impairment of strength occasionally follow. No serious effort had yet been made by an American

author to classify the pathology, to elucidate symptoms, or to establish the differential diagnosis in this important group of traumatisms.

Spinal Concussion.

DR. CARL E. BLACK, Jacksonville, Ill., took the position that minute or capillary hemorrhage was the basis of most, if not all of these cases, and gave the following classification of injuries produced by concussion of the spine: Primary effects, 1, sprains; 2, contusion of the spinal cord; 3, minute hemorrhage into or around the cord. Secondary effects or complications, 1, shock or collapse; 2, acute hysteria; 3, neurasthenia; 4, chronic hysteria. He concluded: "It is certainly the duty of every surgeon to protect himself as well as any corporation he may represent, and the best interests of his patient, by distinguishing, if possible, between the purely psychical, secondarily psychical, and the truly pathologic condition, and treatment should be directed accordingly."

DR. FRANK PARSONS NORBURY, Jacksonville, Ill., also read a paper on this subject. Intramedullary hemorrhage was thought to be the immediate lesion. Most observers are inclined to the view that structural changes are probable, and that the degenerative and vascular changes, following injury to the cord, are indicated in the symptomatology. It is impossible to eliminate the psychic element. It is, therefore, important to recognize the definite and demonstrable symptoms—the symptoms which come on gradually, which in their entirety proclaim the hemorrhagic origin of the disease. The neuro-pathology of to-day is leaning toward the organic origin of many diseases heretofore regarded as functional. Concussion of the cord is one of the most marked of these diseases.

X-Ray Therapy.

DR. EDWIN WALKER, Evansville, Ind., said that while the *x*-ray was of undoubted value in malignant growths, it should not be adopted to the exclusion of other known methods. Excision should be done, if possible, before the *x*-ray treatment was begun.

DR. C. M. MUTZ, Douglass, Kan., followed with a paper in which he dissented from the opinions of those who believed that the physiologic and therapeutic uses of the *x*-ray may be intelligently studied without reference to its nature or genesis. It was not a "giant in chains" which physicians needed to approach in fear when they would unchain it, but no physician, in his opinion, should be content to use a therapeutic agent without inquiry as to its exact nature and the elements of its entity.

DR. J. RUDIS-JICINSKY, Cedar Rapids, Iowa, said that three factors determined the special effect of the rays on the cell: 1, Condition of the body, i. e., the amount of resistance the rays encounted. 2. The amount and intensity of the rays. 3. The character of the rays. When the irritation was moderate, the cells might be stimulated, but if prolonged or given in excess, the change might be progressive in the tissues, leading to the so-called burn, regeneration, absorption, reabsorption, or to a total destruction of the cell.

DR. EVERETT J. BROWN, Decatur, Ill., reported cases and gave as the advantages of the *x*-ray treatment over surgery in many cases as: 1, painless; 2, non-use of anesthetics; 3, less destruction of tissue; 4, astonishing results in many cases regarded as incurable surgically.

DR. CHARLES E. BARNETT, Fort Wayne, Ind., read a paper on "Renal Calculi or Hepatic Calculi; Differential Diagnosis," saying the *x*-ray is not as valuable here as in other regions. It is impossible to make a differential diagnosis. He suggested cutting down and exposing the kidney, then being governed by the findings.

DR. HERMAN E. PEARSE, Kansas City, reported a case of cyst of the mesentery that recovered after operation. He stated that cysts of the mesentery are exceedingly rare.

Through-and-Through Intestinal Suture.

DR. F. GREGORY CONNELL, Leadville, Colo., said that a through-and-through suture should be employed in preference to one that attempted to perforate but a portion of the entire intestinal wall, because of 1, less danger of yielding; 2, less danger of leakage; 3, smaller diaphragm; 4, adhesions were diminished; 5, there was less danger of necrosis; 6, there was no foreign body, and 7, there was a decrease in time. The author closed with a description of the technic, and a report of fifty-four cases.

Gastro-Jejunostomy with the McGraw Elastic Ligature for the Relief of Gastroptosis.

DR. H. O. WALKER, Detroit, read a paper with this title, which will appear in THE JOURNAL.

DR. JOHN YOUNG BROWN, St. Louis, read a paper, in which he spoke of the value of vaginal section in selected cases of pus in the pelvis.

Cancer of the Uterus in the Mississippi Valley.

DR. EMORY LANPHEAR, St. Louis, said that eastern surgeons did not operate on cancer of the uterus, while western surgeons did. What was the result? The census statistics of 1900 showed cancer of the breast, on which all operated, east and west; cancer of the stomach, on which no one operated, and cancer of the uterus, as follows: East, cancer of the breast, 613 cases; cancer of the stomach, 1785 cases; cancer of the uterus, 1101 cases. Mississippi Valley, cancer of the breast, 874 cases; cancer of the stomach, 3776 cases, and cancer of the uterus, 679. The difference showed larger proportions of carcinoma uteri operated on in the west, with either a cure or return of the disease in other organs; hence death was not included in the deaths from cancer of the uterus. Reports from 74 operators in the Mississippi Valley showed 274 cases which had lived more than five years. The diagnosis was confirmed by the microscope in most cases, a result encouraging for earlier diagnosis and prompter hysterectomy.

A Plea for the Abandonment of the Abdominal Belt After Celiotomy.

DR. MAURICE KAHN, Leadville, Colo., read a paper on this subject. The application of an abdominal belt which, if tight enough to exert any influence, must relieve the muscles of their usual labor, results in the atrophy of non-use, whereas it would be desirable to have the hypertrophy of overuse. If it were possible to apply a belt internal to the abdominal wall, it might perhaps be of service in giving the cut edges an opportunity to firmly unite before any strain was imposed on them. Such arguments can not be advanced in favor of the external abdominal belt, which will not prevent the exertion of pressure on structures internal to itself. It has been his practice for over three years, after removing the first dressing, which was applied snugly for comfort and removed at the end of a fortnight, to allow patients to go without any support.

Early Diagnosis and Conservative Treatment of Fibromyomatous Tumors of the Uterus.

DR. L. G. BOWERS, Richmond, Ind., called special attention to the importance of the early diagnosis of fibroids, and pointed out that most of the literature dealt exclusively with the operative views, and nothing was said about preventive measures. The early practice of such treatment often obviated the necessity for hysterectomy.

Treatment of Fractures of the Patella.

DR. DAVID C. PEYTON, Jeffersonville, Ind., discussed the contractions of the quadriceps as an efficient agent in the etiology, and outlined the advantages of treatment by open arthrotomy as compared with non-operative procedures.

DR. TRUMAN W. BROPHY, Chicago, gave a lantern demonstration of his method of operating on cases of cleft palate.

DR. C. E. RUTH, Keokuk, Iowa, discussed the subject of antistreptococcic serum in septic conditions.

Other papers read were as follows: "Smallpox," by Dr. John M. Batten, Downingstown, Pa. "An Attempt to Obtain Uniformly Active, Sterile and Non-irritating Preparations of Digitalis for Subcutaneous and Internal Administration," by Dr. E. M. Houghton, Detroit. "Some Developments in the Therapy of Iodoform," by Dr. J. J. Gaines, Excelsior Springs, Mo., who regards iodoform as the best remedy for tuberculosis. "Normal Sleep vs. Drug Unconsciousness," by Dr. J. B. Larned, Northampton, Mass. Brain and muscle employed in the open air alone during the day will secure normal conditions of sleep

by night. Automatic brain activity at the sleeping hour is the immediate cause of wakefulness. "Treatment of Exophthalmic Goiter by Electricity," by Dr. H. M. Beaver, Spring Hill, Kan. He regards the disease as a vasomotor paralysis, hence it is amenable to electric treatment. "Climatic and Electric Peculiarities of Colorado Favoring Recovery in Pulmonary and Intestinal Diseases and from Surgical Operations," by Dr. J. E. MacNeill, Denver. "Childhood Insanities," by Dr. W. B. Fletcher, Indianapolis.

AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS.

Fourteenth Annual Meeting, held in Washington, D. C., September 16 to 18, 1902.

The President, Dr. Edwin Ricketts, Cincinnati, in the Chair.

(Concluded from page 854.)

Some Problems in Exploratory Laparotomies.

Dr. Walter B. Chase, Brooklyn, said that in uncertain diagnosis from signs and symptoms surgical intervention is often necessary and a valuable diagnostic aid. Training and skill in diagnosis with good judgment would enable one to make an exploratory section in proper cases.

Tetanus Following Abdominal Section.

Dr. Walter B. Dorsett, St. Louis, detailed cases of tetanus due to infected ligatures used in ventrofixation of the uterus. He said there was a widespread belief among the laity that deaths following laparotomies and other major operations were due to the operation per se and not to the causes for which the operation was done. The sooner these false beliefs are eradicated the better both for the profession and the public and the duty of the correction of this erroneous idea lies with the medical profession.

Treatment of Pelvic Abscesses.

Dr. Herman E. Hayd, Buffalo, N. Y., in this paper advocated vaginal incision and drainage to get rid of the free pus, which operation could be advantageously followed by abdominal section. The danger and risks associated with abdominal section in the presence of pus are by this procedure reduced to a minimum. Interesting cases were cited.

Celiotomy for Retroversion of the Uterus.

Dr. A. Goldspohn, Chicago, gave a résumé of the rationale and technic of bi-inguinal celiotomy for complicated aseptic retroversion of the uterus. The argument he advanced was that: 1. Surgical treatment can be consistently recommended for this disorder only, if it be not merely innocent of harmful effects to subsequent gestation and labor, but if its good results are also not frustrated by subsequent childbirth. 2. Most of the operations in vogue do not meet this more ideal requirement, nor have most of their sponsors aimed so high. 3. The round ligaments of the uterus are the only truly serviceable structures to deal with to get such results, because they alone, as a part of the uterus, undergo both evolution and involution with it during and after gestation. 4. The route by which to gain their serviceability best is by the inguinal canals. 5. With a proper technic, the lateral inguinal rings provide ample access for the intrapelvic work in complicated but aseptic cases, without cutting and without hernia following. 6. A table showing later results of about thirty-five new examined cases in addition to seventy-two cases previously reported, with no hernia in any of them. 7. All known cases of subsequent child-birth retained their uteri, etc., in pronounced anteversion and with good involution.

Some Cases of Appendicitis and the Lessons They Teach.

Dr. Miles F. Porter, Fort Wayne, Ind., reported eleven cases with comments thereon and urged that in cases in which germs are widespread no starvation treatment or other methods aside from operation can circumscribe these germs. He said that the sooner the case of appendicitis which was growing worse is operated on the better. No man can tell with certainty the conditions in the organ until he sees the pathologic changes that have obtained.

Difficulties of Diagnosticating Appendicitis.

Dr. William Wotkyns Seymour, Troy, N. Y., read this paper narrating four cases showing the difficulties of diagnosis.

Intrauterine Fibroids.

Dr. M. A. Tate, Cincinnati, Ohio, had collected 41 cases of "Intrauterine Fibroids Complicating Pregnancy and Retained Placenta Associated with Uterine Fibroids Complicating Pregnancy." Analyzing these 41 cases, the histories of which were not complete, in 6 cases the tumor became gangrenous; hemorrhage was a prominent symptom, in that it occurred in 18 cases; 3 polyps were expelled spontaneously; 7 polyps were removed; in 3 cases the polyp was not removed; in 10 cases the labor was normal; in 4 cases labor was difficult; in 2 cases the child had to be destroyed; 1 was a case of turning, and the other a breech; in 4 cases the tumor was discovered before, in all of the rest after labor; 4 cases were reported where labor set in before time; 2 were at the fifth and 2 at the seventh month. The following were the complications reported: septicemia, 8; measles, 1; puerperal mania, 1; retained placenta, 4 cases. Treatment mentioned: cold applications, ergot, iodids, whisky, vinegar cloths in the uterus, packing of uterus with gauze and removal of tumor.

Deciduoma Malignum.

Lewis S. McMurtry, Louisville, Ky., gave a résumé of the diagnosis, pathogenesis and pathologic classification of the disease, the latter being somewhat unsettled. The clinical disease presents a well-defined history, appearing after abortion or labor. Of 128 recorded cases 40 per cent. appeared after mole pregnancy.

Carcinoma of the Cervix Uteri.

Dr. L. H. Dunning, Indianapolis, Ind., read a paper on this subject in which he presented a summary of his 62 cases operated on by hysterectomy. These cases showed on applying the accepted test of time—5 years—that the author had had an encouraging number of cures; they also showed the desirability of early operative procedure. The operative methods employed were indicated and the author's views of the same were discussed. The essayist reported five cases of carcinoma of the cervix uteri which were alive five years after hysterectomy.

BUFFALO ACADEMY OF MEDICINE. SECTION ON MEDICINE.

Regular Meeting, held Tuesday, Oct. 14, 1902.

The Chairman, Dr. Albert E. Woehnert, presiding.

Jenner—His Works and Their Value.

Dr. George Dock, Ann Arbor, Mich., read a most entertaining and interesting paper on the works of Edward Jenner, and their value in the modern study of smallpox.

The writer, through the courtesy of Dr. William Osler, has been able to read some of the original pamphlets of Dr. Edward Jenner concerning his work and the controversies and inquiries concerning his discoveries. He stated that we should not judge this part of Jenner's work harshly in view of the lack of knowledge of pathology and microscopy of that time. He praised Jenner for his descriptive power in reciting the symptoms and progress of his cases, and for his indefatigable energy in defending his position against his many opponents. Jenner devoted twenty-two years to his investigation.

Up to Jenner's time every tenth death was due to smallpox, and one-fourth the population were disfigured by it. In Russia one-seventh of all the children died from this cause. England suffered many epidemics, and it was always accompanied by fear and pestilence.

In 1802 Jenner received a grant of £10,000 from Parliament for carrying on his work in vaccination, and in 1807 received a second grant of £20,000. He had as many as 300 applicants daily for vaccination, and that, in addition to the many letters which it was necessary for him to answer in view of the lack of medical journals of that day, may explain why he wrote so few articles. Dr. Dock then showed a copy of one of the original folios on Jenner's instruction for vaccination. In this note, among other things, he gave orders for cleanliness in the

operation, and recommended that the abrasion be only slight. He recognized many cases of failure, but insisted on re-inoculation. When vaccination was successfully done Jenner believed that life-long immunity would follow.

After a historical résumé of the progress and results of vaccination in various countries, he said that we can not reckon on combating smallpox without Jenner's discovery, unless we pay a heavy penalty. Cleanliness alone is not protective. This was admirably demonstrated at Cleveland when the health officers sought to replace vaccination by disinfection of premises. The German government teaches that this disease may be combated by enforced and repeated vaccination until successful with stated repetitions of the procedure to maintain immunity.

In a democratic country like the United States general vaccination can not be accomplished, but he argued that general vaccination is a democratic institution, and is for the protection of the community. The supply of virus should be under government control, and not under commercial control.

DISCUSSION.

DR. DE LANCEY ROCHESTER deplored the question of commercialism in the manufacture of virus. He recalled a very good virus at one time obtained, and on its subsequent trial found by analysis that the second sample was inert. He favored state control of the manufacture of virus, and also that vaccination be done when no other infectious diseases are prevalent, and when the subject is in good health.

DR. HENRY R. HOPKINS, president of the New York State Medical Society, regretted that a city of the importance of Cleveland should have a mayor who was not in favor of vaccination. A former health officer of Niagara Falls was opposed to vaccination. There is but one solution to the problem, and that is state control. There should be a national organization of sanitation—a Secretary of Health.

DR. IRVING P. LYON stated that New York City makes its own vaccine virus. He was surprised that it could not be obtained in Buffalo, and stated that it could be obtained if a request were made on the New York Laboratory.

DR. CHARLES G. STOCKTON felt that Dr. Dock was to be congratulated for bringing to the attention of the profession Jenner's work and its effect in so concise and able a manner. Too much missionary work in educating physicians and laymen can not be done to overcome the harm done humanity by the anti-vaccinationists.

DR. ROSWELL PARK stated that it should be of interest to know what was done toward the prevention of smallpox before Jenner's discoveries. He alluded to the inoculation of virus in the Orient, which was introduced into England by Lady Montague. He also briefly referred to the letters and correspondence of John Hunter and Jenner, his pupil. Hunter imposed many arduous labors on his servile pupil, Jenner, who often was repaid only by oaths. Jenner, at the solicitation of Hunter, procured for him many specimens which were added to the Hunterian collection.

DR. ARTHUR W. HURD referred to the aid which Thomas Jefferson, as President of the United States, gave the Boston physician who introduced vaccination in America. Jefferson had his household vaccinated.

Therapeutics.

[It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment are answered in these columns without allusion to inquirer.]

Drugs Excreted by the Milk.

The following is a list of drugs which are excreted by the milk and which, consequently, affect the infant: Sulphur, rhubarb, senna, jalap, indigo, arsenic, bismuth, iron, mercury, potassium iodid, zinc, iodin, antimony, opium, oil of anise, oil of dill, garlic, castor oil, lead, oil of turpentine, oil of copaiba, all the volatile oils, magnesium sulphate, carbolic acid, quinin, strychnin and cascara sagrada. The elimination of these drugs by the milk is more liable to take place when the mother is in a disturbed condition physically and when the mammary glands are not in a normal condition. Consequently care must be observed in prescribing some of these preparations for the mother. For example, copaiba and turpentine will so affect the taste of the milk as to cause the infant to refuse the breast. Diarrhea may be produced in the infant by administering castor oil or other of the above purgatives to the mother, and the opium preparations will produce the opposite effect on the child through the mother's milk. It is said that sufficient action may be produced on the child by administering mercury, arsenic and potassium iodid to the mother.

Convulsions of Unknown Origin.

Perier, as noted in *Amer. Med.*, recommends the following treatment of convulsions in children:

1. Loosen the clothing so that the neck, thorax and abdomen are exposed, and lay the child on its back. If there is constipation, a rectal injection of oil, glycerin or soap should be given.

2. If there is indigestion, provoke vomiting by tickling the uvula and then give a purgative injection.

3. At the same time make the patient inhale a few drops of ether or chloroform from a handkerchief and then open the windows.

4. If the convulsions are prolonged, a hot bath or a mustard bath should be given; the patient should then be dried quickly in order to prevent a return of the convulsions, and a teaspoonful of the following solution should be given every hour:

℞. Potassii bromidi
Sodii bromidi
Ammon. bromidi, āā.....gr. viiss 50
Syr. codeinæ .....gtt. lxxv 5
Syr. aurantii .....ʒi 30
Aq. calcis .....ʒiii 90
M. Sig.: One teaspoonful every hour.

If the child is unable to swallow the following may be given per rectum:

℞. Moschus .....gr. iii 20
Chloralis hydratis .....gr. ivss 25
Camphoræ .....gr. i 06
Ovi vitelli .....ʒiiss 10
Aq. destil. .....ʒiii 90
M. Sig.: At one time as a rectal injection.

As a suppository the following may be used instead of the above:

℞. Chloralis hydratis.....gr. iii-x 20-65
Olei theobromatis .....ʒss 2
M. Ft. suppos. No. 1. Sig.: As directed.

The child should not be left alone until he has come out of the convulsion, which is not definitely passed until he has voided urine; and then the cause should be looked for.

Scabies.

Balzer, according to *N. Y. Med. Jour.*, gives the following directions for the rapid cure of scabies: 1. Friction with soft potash soap containing a certain quantity of chalk or of the finest sand. This friction should be general and vigorous, and should last twenty minutes. 2. A bath for one hour during which the frictions are continued, after which the following is applied with friction:

℞. Sulphuris .....ʒii 8
Pot. subcarb. .....ʒi 4
Adipis .....ʒiss 45
M. Ft. unguentum. Sig.: Apply locally.

This friction should be prolonged for fifteen or twenty minutes and the patient should remain smeared with the ointment until the following day. He takes a tepid bath to remove the ointment and the treatment is finished, and in most cases the patient is completely cured. In the hospital the clothes are disinfected. It is occasionally but rarely necessary to repeat the treatment two or three times.

When scabies is accompanied by pustular or other exudative lesions, the crusts must first be loosened and the secretions checked. For this, baths and moist applications are used.

When it is complicated by eczema, starch cataplasms, silver nitrate and zinc paste, to which has been added liquid storax or Peruvian balsam, may be used. The following ointment allays irritation:

R.	Petrolati		
	Adipis		
	Lanolini; āā	3v	20
	Zinci oxidi	3iv	16
	Balsami Peruvian	gr. xv	1
	Menthol	gr. iv	25

M. Ft. unguentum. Sig.: Apply locally; or:

R.	Amyli		
	Zinci oxidi, āā	3vi	24
	Petrolati	ʒiss	45
	Liq. styracis	3i	4

M. Ft. unguentum. Sig.: To be applied locally.

These ointments are well tolerated and bring about a certain improvement in the lesions due to scabies, also more energetic ointments may next be employed to destroy the parasite.

The following preparation has been highly praised as a substitute for the sulphur preparations:

R.	Beta naphthol	ʒss	2
	Petrolati	ʒx	40
	Saponis viridis	3v	20
	Adipis	3i	4

M. Ft. unguentum. Sig.: To be applied locally. This preparation is as efficacious as the sulphur ointment and is better tolerated by the skin; it is especially useful in children.

Balsams, as liquid storax and Peruvian balsam, have been largely used of late years and are very energetic and efficacious; but cases of poisoning have been noted when they have been used in too concentrated form, so they should always be diluted with a considerable quantity of petrolatum or oil:

R.	Liq. styracis	3iii	12
	Petrolati	ʒx	40
	Olei olivæ	ʒx	40

M. Sig.: Apply locally; or:

R.	Balsami Peruv.		
	Sulphuris precip., āā	3i	4
	Petrolati	ʒx	40

M. Sig.: For local application.

The Peruvian balsam may be applied dissolved in alcohol as follows:

R.	Balsami Peruv.	3i	4
	Alcoholis	ʒiiss	75

M. Sig.: For local application.

The following formulæ are also recommended in the treatment of scabies:

R.	Ichthyol	3iv	16
	Glycerini		
	Aq. destil., āā	ʒvi	24

M. Sig.: Apply externally two or three times a day; or:

R.	Potass. carb.	ʒss	2
	Sulphuris sublim.	3i	4
	Lanolini	ʒi	30

M. Ft. unguentum. Sig.: Apply locally night and morning; or the following lotion may be used:

R.	Hydrarg. chloridi corros.	gr. ii	12
	Alcoholis	3iii	12
	Ammonii chloridi	gr. xv	1
	Aquæ rosæ q. s. ad	ʒiii	90

M. Sig.: Apply locally twice a day.

Bulkley recommends the following:

R.	Sulph. sublim.		
	Olei cadini, āā	ʒii	8
	Cretæ prep.	ʒiiss	10
	Saponis viridis		
	Adipis, āā	ʒi	30

M. Ft. unguentum. Sig.: Apply locally.

Schultze recommends the following, which is a modification of Pastav's formula:

R.	Styracis liq.	ʒi	30
	Spts. rectif.	ʒii	8
	Olei olivæ	3i	4

M. Ft. linimentum. Sig.: Apply locally.

Vertigo.

For the treatment of vertigo Professor Vires, in *Med. Press*, recommends special and general treatment. The special treatment should be directed to the different causes of vertigo when they can be traced to affections of which vertigo is but one of the symptoms, such as syphilis, malarial fever, gout, gastric affections, etc. As regards general treatment he recommends potassium iodid, ten to twenty grains a day for months, with periods of rest, during which quinin is administered. However, the quinin should be given only when other methods fail, as it affects the hearing and leads, if prolonged, to absolute deafness. About six or eight two-grain pills should be given daily for one week and then suspended for one week, after which the drug should be resumed for eight days, when a notable improvement takes place. Treatment should be continued in this manner until a cure is effected. Vertigo due to arteriosclerosis should be treated with small doses of potassium iodid as follows:

R.	Pot. iodidi	3i	4
	Aquæ	ʒx	300

M. Sig.: Two tablespoonfuls daily for three weeks in the month. At the same time three drops of a solution of nitroglycerin—1-100—might be given morning and evening, and a milk diet be prescribed for eight days every month, while laxatives should be given frequently. If tachycardia be present, one or two of the following pills should be ordered daily:

R.	Ext. convallariæ	gr. ii	12
	Sparteinæ sulph.	gr. i	06

M. Ft. pil. No. i. Sig.: One such daily.

The insomnia is best treated with trional and edema of the limbs by theobromin, ten grains four times a day. If in spite of this treatment the edema persists and increases digitalis should be given and a milk diet instituted. A purgative of jalap and scammony should be prescribed once a week.

Medicolegal.

Power to Determine Standing of Medical College.—The case entitled Illinois State Board of Health vs. The People was instituted under the statute of 1887 providing (Section 2) that the State Board of Health "shall issue certificates to all who furnish satisfactory proof of having received diplomas or licenses from legally chartered medical institutions in good standing, as may be determined by the board." Prior to 1890, the board adopted a resolution that medical colleges in good standing under the first section of this statute, which contained a provision substantially the same as that quoted, with reference to applicants who relied on a diploma, was thereby defined to include only those colleges which should, after sessions of 1890-91, require four years of professional study. A diploma dated March 22, 1894, was presented. The defense was that the institution which granted it was not, at the time the diploma was issued, a medical institution in "good standing," within the meaning of the statute above quoted from, as determined by the board of health—in that students therein were required to take a regular course of study of only two years, instead of four years as required by the rules and regulations of the board. Now, the Branch Appellate Court of the First District of Illinois holds it to be undoubtedly the law that the State Board of Health is possessed of discretionary power to determine whether a medical college is in "good standing," within the meaning of the statute and as defined in its resolution above mentioned, and that when the board has determined that question in favor of the applicant, it has exhausted its discretion, and may not refuse a license for arbitrary reasons of its own. But it appeared most satisfactorily that the refusal to grant the license in question was because the institution granting the diploma was not in "good standing" within the rules adopted by the board. If there was in the record anything which showed that the institution had brought itself within the statute subsequent to the issuance of the diploma in question, it was immaterial for the purposes of this case. The question here was whether the medical institution was in good standing at the time the diploma was issued, and that inquiry,

on investigation, had been answered by the State Board of Health adversely to the applicant, and was not subject to review by mandamus proceedings.

Competency of Expert—Irresistible Impulse—Sanity.—The Supreme Court of Florida says, in Davis vs. State, that it is the province of the trial court to determine whether or not a witness offered as an expert has such qualifications and special knowledge as to make his opinions in answer to hypothetical questions admissible, and the decision of the trial judge is conclusive on this question, unless it appears on the evidence to have been erroneous, or to have been founded on some error in law. Some courts hold that the trial judge has a discretion not subject to review in passing on the facts relating to the qualifications of a witness offered as an expert, but a discretion of this nature can not be admitted to exist in the jurisprudence of this state (Florida). The qualifications necessary to enable witnesses to testify as experts are prescribed as well as ascertained by rules of law, and, if these rules are violated by the trial judge, his action will be erroneous, and subject to review. The question whether a particular witness possesses the necessary legal qualifications of an expert is a question of fact to be determined by the trial judge from testimony bearing on that question, and, if he clearly errs in his decision on this question of fact, his decision will likewise be erroneous, and subject to review. Of course, his decision on such question of fact will be entitled to weight in the Appellate Court, because of the superior advantages possessed by the trial judge, who hears the testimony and observes the witnesses; and his decisions will not be pronounced erroneous unless they are clearly so. He must decide the question of fact as he would other questions of fact arising for his decision on the trial, and his decision will be given due weight; but if he has erred in matter of law, or if his decision on the evidence is clearly erroneous, it is subject to review and control by an Appellate Court. Then the court says that the doctrine of "irresistible impulse" does not obtain in Florida, and such impulse is not recognized as affecting responsibility for a crime committed by one who has sufficient mental capacity to distinguish between right and wrong with respect to the particular act, and who knows that he is doing wrong when he commits it. Sanity being the normal condition of man, when charged with crime he is presumed to be sane, and the mere fact of the commission of the crime is not in itself sufficient to overcome this presumption. It was not sufficient that the accused in this case was insane before or after, or both before and after, the firing of the fatal shots, but he must be insane at that particular moment. If, however, insanity of a permanent type or continuing nature, or characterized by an habitual and confirmed disorder of the mind, not temporary or occasional, were shown to have existed prior to the commission of the act, it would be presumed to continue up to the commission of the act, unless the presumption were overcome by competent testimony.

Unauthorized Pesthouse.—The Court of Appeals of Kentucky says that the case of Arnold vs. the City of Stanford was brought to recover damages because the city, it was alleged, located a pesthouse for the treatment of smallpox patients so near the house of the party suing, within the city, as to endanger the lives of himself and his family and to render his home uninhabitable. However, it was not alleged that the city, by action of its council, in adopting an ordinance or resolution to that effect, directed the act complained of, or that the council, by ordinance or resolution, ratified the act. And the court says that in such matters a city acts by its council only. Neither the individual acts of the members (though all may have favored the act), nor of its ministerial officers, unless ratified by council in session, should bind the municipality. Until so adopted or ratified, the act remains as that of the individuals perpetrating it only. Moreover, this was a city of the fifth class, and cities of the fifth class in Kentucky are not empowered to establish or maintain pesthouses or hospitals for the treatment of eruptive diseases. The fact, the court says, that the legislature, at a session when the statutes governing cities of the various classes were passed, gave the power specifically to some cities, and did not mention it when treating of the powers of others, in which their powers were enumerated with particularity, indicated a legislative determination to withhold the power where it was not expressed. Again, it says that Section 3909 of the Kentucky Statutes forbids the location of a pesthouse for the treatment of eruptive or contagious diseases within the corporate limits of any incorporated city, or within a mile of the boundary line thereof. The same section provides a penalty against the officer or person who shall violate the section. In the absence of any other statutory regulation, this would seem to be an express prohibition against the city's maintaining or erecting the pesthouse within its corporate limits. Should the council attempt, even by ordinance, to do so, the ordinance would be void. They could not bind the city by it. Where officers of the city, with or without the protection of an ordinance, should do an act expressly prohibited by statute, such an act would not be within the scope of their official duty, or would be *ultra vires*, as it is called. The city can not be bound thereby. The act sued for was a nuisance under the facts stated. But not being the act of the city, it was the act of those who actually set up and maintained the pesthouse. It was thus a private nuisance, of the same legal character that the establishment of a slaughterhouse by individuals might be. It was admittedly true that the city could, by ordinance and prosecution, so punish perpetrators of nuisances within its jurisdiction as to prevent them. For a failure to enact and execute such ordinances, would the city be liable? The court is of the opinion that it would not. It would be a failure to discharge its political duties, for which it would not be liable to a suit at law. Wherefore, the court is of the opinion that the petition failed to state a cause of action against the city in this case.

Current Medical Literature.

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

New York Medical Journal, October 18.

1 *Shoe Deformities. E. H. Bradford.
2 *The Treatment of Prolapse of the Rectum. Joseph M. Mathews.
3 The Evolution of Urology. (Concluded.) Ramon Guiteras.
4 *The Clinical Value and Treatment of Atonic Dilatation of the Stomach. B. C. Loveland.
5 *Observations on Muscular Relaxation in Its Relation to Women's Diseases. D. Ernest Walker.
6 Studies in Stethophonometry. Albert Abrams.
7 A Case of Acute Diabetes in a Child Three Years of Age. Frank B. Swartzlander.

Medical News (N. Y.), October 18.

8 *The Huxley Lecture on Recent Studies of Immunity, with Special Reference to Their Bearing on Pathology. William H. Welch.
9 *Drug Habit: Review of Articles by Drs. Hare and Lott. George E. Pettey.
10 Polyhydramnios: Its Differential Diagnosis and Treatment, with the Report of Cases. Edward P. Davis.
11 *Recent Discoveries in the Domain of Etiology. D. H. Bergey.

Medical Record (N. Y.), October 18.

12 *Statistical Report on Creosote in Pneumonia. I. L. Van Zandt.
13 *The Results of Treatment of Laryngeal Cancer by Means of the X-Ray. D. Bryson Delavan.
14 *Varicocele. Charles Chassaignac.
15 The Early Diagnosis of Pulmonary Tuberculosis. Seale Harris.
16 *Some Reflections on Cases of Acute Intestinal Obstruction. H. Beeckman Delatour.
17 *Dulness in Appendicitis. H. T. Miller.
18 The Doctor and the School Teacher, Can They Not Work More in Harmony? Richard C. Newton.
19 Foreign Bodies Accidentally Left Within the Abdominal Cavity; How to Prevent the Occurrence. Howard Lilienthal.

Boston Medical and Surgical Journal, October 16.

20 *Annual Oration Before the Maine Medical Association. James R. Chadwick.
21 *Pelvic Cellulitis as a Complication of Uterine Fibroids. A. T. Cabot.

Philadelphia Medical Journal, October 18.

22 *Hodgkin's Disease, with the Report of a Case. Thomas C. Ely.
23 Infantile Scurvy; Report of a Case, with Fracture of the Femur, and Multiple Epiphyseal Separations. Theodore S. Elterich.
24 *Acroparesthesia. Frank R. Fry.
25 Tent Life in Arizona in the Treatment of Tuberculosis. Henry H. Stone.
26 Littoral California. (Continued.) William A. Edwards.

American Medicine (Philadelphia), October 18.

27 *Ruptured Pus-Tubes. Charles G. Cumston.
28 *Pericarditis as a Terminal Infection of Chronic Bright's Disease. Herman B. Allyn.
29 *The Discovery of Astigmatism and Eye-Strain. George M. Gould.
30 *Types of Infection Produced in Man by Intermediate Members of the Typhoid-Colon Group of Bacilli. (Concluded.) Warren Coleman.
31 Laryngeal Symptoms Complicating a Case of Purpura Hemorrhagica. Joseph S. Gibb.
32 Heatstroke Followed by Non-Fatal Lightning Stroke: Report of a Case, with Sequels. George H. Torney and William E. Musgrave.
33 A Case of Multiple Gunshot Wound of the Intestines; Laparotomy; Recovery. E. B. Marsh.
34 The Teaching and Practice of Surgery in the Vienna Allgemeine Krankenhaus. Nicholas Senn.

St. Louis Medical Journal, October 18.

35 Anasarca in Malaria. F. L. Morse.

Cincinnati Lancet-Clinic, October 18.

36 Surgery of Prostate, Pancreas and Diaphragm. (Continued.) B. Merrill Ricketts.
37 *Multiple Infections. Mark A. Brown.
38 *Green Drug Fluid Extracts. C. S. Chamberlin.
39 Severe Extrinsic Traumatisms of the Spine. Thomas H. Manley.

American Practitioner and News (Louisville, Ky.), September 1.

40 Intestinal Obstructions: Report of Five Cases. August Schachner.
41 Suggestive Therapeutics or Psychological Medicine. Anna G. Sedam.
42 The Value of State Control and Vaccination in the Management of Smallpox. J. N. McCormack.
43 The Influence of Contaminated Water in the Development of Diseases. D. G. Simmons.
44 *The Mammary Gland; A Plea in Equity. C. C. Lewis.
45 A Few Scattering Thoughts. T. A. Frazer.
46 Errors of Diagnosis of Continued Fevers. Horace T. Rivers.

Medical Fortnightly (St. Louis), October 10.

47 Emergency Surgery—Case Records. Carl E. Black.
48 A Note on the Spontaneous Fracture and Expulsion of Urinary Calculi. Reginald Harrison.
49 The Technic and Possibilities of Endovesical Operative Procedures. Louis E. Schmidt.
50 Hypnotics in General Medical Practice. S. E. Luckett.
51 Puerperal Tetanus. Report of a Case. E. W. Crum.

Pediatrics (N. Y.), October 1.

52 The Surgery of Those Affections of the Cerebrospinal Nervous System Which Occur More Especially in Children. Harold J. Stiles.

October 15.

53 *On Defective Coördination in Utero, as a Probable Factor in the Causation of Certain Congenital Malformations. John Thomson.
54 A Note on the Surgical Treatment of Spastic Infantile Paralysis. Robert Jones.
55 Enlarged Faucial and Pharyngeal Tonsil; Granular Pharyngitis. Samuel G. Dabney.

Virginia Medical Semi-Monthly (Richmond), October 10.

56 Some Benefits of Thorough Organization of the Medical Profession, Both to the Laity and Profession; With Mention of Some of the Most Prevalent Causes of Sickness, Race Decay, and Their Prevention. R. S. Martin.
57 *Septicemia and the Curette. H. Plympton.
58 Some Thoughts Suggested by a Case of Urinary Fistula Following a Vaginal Hysterectomy. J. W. Henson.
59 Dependent Drainage in Acute Extensive Intrapelvic and Intraperitoneal Infection in Men by Incising the Perineum, Separating the Rectum from the Prostate and Bladder, and Puncture of the Recto-Vesical Pouch of the Peritoneum. Hugh M. Taylor.
60 The Methods of Using Argyrol. A. C. Barnes.
61 A Case of Volvulus, with Torsion of the Entire Mesentery. G. T. Vaughan.
62 Public Care and Treatment of Inebriety. T. D. Crothers.

Archives of Pediatrics (N. Y.), October.

63 *Diphtheria, with and without Antitoxin; 159 Cases. Charles G. Kerley.
64 *Some Remarks on Intubation in Diphtheria. John H. McCollom.
65 Chronic Parenchymatous Nephritis in a Child Treated by Renal Decapsulation (Edebohls' Operation). Augustus Caillé.
66 *Analysis of Human Milk the Basis of the Artificial Feeding of Infants. Arthur V. Meigs.
67 The Effects of Acid Fermentation upon the Curd of Milk. Walter G. Murphy.
68 *A New Sign of Pleuritic Effusion in Children. Samuel W. Kelley.

Occidental Medical Times (San Francisco), October.

69 On the Treatment of Paralytic Clubfoot. S. J. Hunkin.
70 Medical Education. William F. McNutt.
71 Primary Carcinoma of the Body of the Pancreas. Guido E. Cagliéri.
72 Ankylostomiasis—Report of a Case. Louis A. Kengla.
73 Insomnia. Francis Crosson.

New York State Journal of Medicine (N. Y.), October.

74 *A Review of Echinococcus Disease in North America. Irving P. Lyon.
75 *Congenital Narrowness of the Aortic System. Joseph Burke.
76 A Durham Tube in the Right Bronchus. E. D. Ferguson.

Maryland Medical Journal (Baltimore), October.

77 Addison's Disease, with the Aid of Tuberculin in Diagnosis. Morris C. Robins.
78 Report of a Case of Progressive Muscular Atrophy (Spinal), with Mental Symptoms. R. Edward Garrett.
79 A Remarkable Case of Early and Continued Menstruation. George Wells.

Annals of Surgery (Philadelphia), October.

80 *Fatal Acetonemia Following an Operation for Acute Appendicitis. George E. Brewer.
81 Acute Suppurative Pancreatitis. Francis W. Murray.
82 *Cholecystectomy vs. Removal of the Mucous Membrane of the Gall-Bladder. Emil Ries.
83 *Removal of the Bladder and Prostate for Carcinoma Through a Suprapubic Opening. Malcolm L. Harris.
84 *Results of Operation on the Kidney for Tuberculosis. Edgar Garceau.
85 *Valve Formation in the Lower Portion of the Ureter. William E. Morgan.
86 Excision of the Lumbar Lymphatic Nodes and Spermatic Vein in Malignant Disease of the Testicle. John B. Roberts.
87 Report of a Case of Gunshot Wound of the Thorax Involving the Heart. Levi J. Hammond.
88 *Measurements for Operating Distances in the Nose. Harris P. Mosher.
89 *Contribution to the Surgery of Cleft Palate. Alexander H. Ferguson.
90 Total Excision of the Scapula, with Preservation of the Upper Extremity. Sidney P. Delaup.
91 A Further Note on Interscapulo-thoracic Amputations. Robert G. Le Conte.
92 Operative Dislocation of the Head of the Femur in Tubercular Disease of the Acetabulum. Edward H. Bradford.
93 Contribution to the Pathology of Supra-acromial Dislocation of the Clavicle and Obturator Dislocation of the Hip. Percival R. Bolton.
94 A Case of Trigger Fingers. Frederic Griffith.
95 The Hartley-Krause Flap in Hemorrhage from the Middle Meningeal Artery. Samuel C. Plummer, Jr.

American Medical Compend (Toledo, Ohio), October.

96 Double Vagina, Complete Prolapsus of the Uterus and Vagina with a Growth Which Involved the Cervix. E. E. Montgomery.
97 Position and Topography of the Ureteral Calyces and Pelvis. Byron Robinson.
98 Army Hospitals, Past and Present. E. B. Tucker.
99 How to Assist Young Girls to Womanhood. Edward C. Hill.

Annals of Otology, Rhinology and Laryngology (St. Louis), August.

100 The Present Status of the Knowledge of Otogenous Pyemia. Dr. Jansen.
101 The Nature of Discharges and Douches. Wyatt Wingrave.
102 Three Cases of Simultaneous Operation for Double Mastoid Abscess. Charles W. Richardson.
103 Diseases of the Accessory Sinuses. Robert C. Myles.
104 The Ethmoidal Cells. Eugene L. Van Sant.
105 *Prognosis in Chronic Catarrh of the Throat and Ear; Some Remarks by a Would-Not-Be Pessimist. Thomas J. Harris.
106 Report of a Case of Thyroid Gland Tumor in the Larynx. Walter A. Wells.
107 Report of an Accident with a Tracheotomy Tube. Charles N. Cox.
108 *A Physiologic Statement Explanatory of Some of the Symptoms of Mouth-Breathing. William L. Ballenger.
109 The Surgeon's Duty to Chronic Otorrheal Patients. B. F. Church.
110 *The Treatment of Laryngeal Papillomata, with Report of a Case. Dunbar Roy.
111 Epithelioma of Middle Ear. W. H. Haskin.
112 Hydrobromic Ether; Notes upon Its Use as an Anesthetic in Adenoids and Tonsil Operations. D. J. Gibb Wishart.
113 *The Protection and Preservation of the Labyrinthine Wall, with Reference to the Prognosis for Hearing in Radical Tympano-Mastoid Exenteration. Redmond Payne.
114 Report of a Case of Rapid Necrosis of the Temporal Bone Following Scarlet Fever. Francis R. Packard.
115 *The Rhinologist an Important Factor in the Prevention of Tuberculosis. F. M. Pottenger.
116 Spasmodic Torticollis Following an Adenotomy. J. M. Ingersoll.
117 A Case of Epithelioma of the Auricle and Auditory Canal. Thomas R. Pooley.
118 Supposed Cavernous Sinus Thrombosis. Ewing W. Day.
119 Tumor of Cerebellum. Ewing W. Day.
120 A Foreign Body in External Auditory Canal Simulating a Sequestrum. W. H. Roberts.
121 *Some Observations on Operations for Malignant Disease of the Mouth and Neck. George W. Crile.
122 Pharyngitis Lateralis Hypertrophica. Fred Baker.
123 Polypi of the Antrum. Robert C. Myles.

Indiana Medical Journal (Indianapolis), October.

124 A Case of Cretinism Treated with Thyroid Gland. Ezra O. Price.
125 Atrophic Rhinitis. John J. Kyle.
126 An Adherent Cutaneous Exanthem; Probably Duke's "Fourth Disease." Edgar F. Kiser.
127 A Case of Hydracyanic Acid Poisoning. Ira E. Cox.

American Journal of the Medical Sciences (Philadelphia), October.

128 *Two Conditions Simulating Ectopic Gestation. Edward P. Davis.

129 *A Rapid Reaction for Bence-Jones Albumose. L. Napoleon Boston.
130 A Case of Adiposis Dolorosa (Dercum's Disease). Max H. Bochroch.
131 *A Further Contribution to Our Knowledge of the Histology of the Gastric Mucosa in Pathological Conditions of This Organ. Max Einhorn.
132 Infection of Ovarian Cysts During Typhoid Fever; Report of Two Cases; Operation; Relapse; Recovery. Morris J. Lewis and Robert G. LeConte.
133 Clinice of Dr. Joseph D. Bryant: 1. Excision of the Breast. 2. Hemophilia. 3. Excision of the Knee. William C. Lusk.
134 Keratosis of the Pharynx. Charles W. Richardson.
135 A Preliminary Study of the Ocular Changes Produced by the Injection of Pure Cultures of the Bacillus Typhosus into the Vitreous Chambers of Rabbits and Guinea-pigs. Charles A. Oliver.
136 Perforated Gastric Ulcer; Peritonitis; Death; Diagnosis at Autopsy. Astley P. C. Ashhurst.
137 Malaria: A Summary of Recent Progress in the Knowledge of Its Etiology and Prophylaxis. Barton L. Wright.
138 The Theory of Cross-Education as Applied to the Auditory Apparatus. Lewis S. Somers.
139 *A Case of Acute Lymphatic Leukemia without Enlargement of the Lymph Glands. Dorothy M. Reed.
140 Report of a Case of Severe, Probably Pernicious Anemia, with Marked General and Coronary Atheroma, in Which Many Evidences of Aneurism Were Present without Anatomical Explanation for Them. Arthur R. Edwards.
141 *The Pathology of Pernicious Anemia, with Special Reference to Changes Occurring in the Hemolymph Nodes (Eight Autopsy Cases). Aldred S. Warthin.

Old Dominion Journal (Richmond, Va.), October.

142 Clinical Lecture on Hernia Given at the Old Dominion Hospital, Richmond, Va., May 9, 1902. W. B. Coley.
143 First Aid in Railway Surgery. R. B. Miller.
144 Acute Intestinal Diseases of Children. J. T. Walker.
145 Medicine's Latest Menace. A. B. Greiner.
146 Curettement of the Uterus. George B. Johnston.
147 A Plea for the More Frequent Use of Accouchement Forcé. Christopher Tompkins.

Therapeutic Gazette (Detroit, Mich.), October 15.

148 *Calomel and Tincture of Iron. M. H. Sprague.
149 *X-Ray as a Therapeutic Agent. William L. Heeve.
150 *Chloretone to Prevent Post-Operative Vomiting. Leonard W. Bickle.
151 Treatment of a Case of Sporadic Cretinism. Philip F. Barbour.
152 *Forty Cases of Typhoid Fever Treated with Benzoyl-Acetyl Peroxid (Acetozone). I. A. Abt and E. Lackner.

Medical Summary (Philadelphia), October.

153 Interesting Practical Facts in Reference to Diseases of the Kidney. H. Wm. Wormley.
154 The Old Medical Doctrine. Brose S. Horne.
155 Concussion of the Brain. S. A. Buchanan.
156 Concerning Preventive Medicine. J. Hobart Egbert.
157 Hay Fever. George J. Monroe.
158 Use and Abuse of Antiseptics in Typhoid Fever. J. A. De Armand.
159 Rectal Ulcer. M. G. Price.
160 Ascites. William H. Vail.

Cleveland Medical Journal, October 15.

161 The Conflict with Tuberculosis. (To be concluded.) John H. Lowman.
162 *On the Diagnosis of the Renal Function and Its Relation to the Surgery of the Kidneys. (Concluded.) William E. Lower.
163 Report of a Case of Hernia, Reduced "En Bloc" with Symptoms of Strangulation for Twenty-one Days—Operation—Recovery. Russel H. Birge.
164 A Case of Nephrolithiasis. F. E. Bunts.
165 Report of Cases of Surgery of the Thyroid Body. John C. Oliver.

Denver Medical Times, October.

166 The Hygienic and Commercial Importance of Pure Foods and Drinks. R. Harvey Reed.
167 Does Antitoxin Diminish Diphtheritic Paralysis? J. E. Courtney.
168 Subcutaneous Injections of Paraffin in the Correction of "Saddle-Nose." Leonard Freeman.

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169 Surgery of Chronic Middle-Ear Suppuration. John E. Brown.
170 *The Contagiousness of Tuberculosis. Joseph Eichberg.
171 Nasal Polypi. Charles S. Means.
172 Our Attitude Toward Osteopaths, Christian Scientists and Physical Culturists. A. O. Bonnett.

Oklahoma Medical News-Journal (Oklahoma City), October.

173 Benign Growths of the Post-Nasal Space. Philip J. Bartle.

Medical Herald (St. Joseph, Mo.), October.

174 Psychical Epilepsy in a Child. S. Grover Burnett.
175 Tubercular Peritonitis. T. E. Potter.
176 Some Recent Experiences in Gall-Bladder Surgery. Byron B. Davis.

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1. **Shoe Deformities.**—Bradford reviews the different types of shoe deformities, giving illustrations of hallux valgus, both the natural and *x*-ray, the crowdings of the little toe and deformities due to constrictions and confinement of the feet, with illustrations of the shoes producing these difficulties. The disabilities noticed are, besides the ones already mentioned, loss of limitation of the power of side motion at the metatarso-cuneiform articulation, flattening of the transverse arch, etc. He thinks for active work on the feet the shoe should be of a non-constricting nature. The boot should be straight on the inner side, should not rock up at the top, should not bind the lower instep, and should give sufficient play to the toes.

2. **Rectal Prolapse.**—Mathews describes an operation which he has performed and which he advises in many cases, but admitting that colopexy is perhaps the preferable one in cases of very large prolapse in the adult. The following is his plan: "The rectum is irrigated several times before the operation with a hot solution of boric acid, one ounce of the powder dissolved in a gallon of distilled water. After the patient is anesthetized, the rectum is drawn out to the full extent of the prolapse. It is then held firmly by forceps, and an incision is made at the *anal* portion of the prolapse, completely around the gut. A careful dissection is now made of the mucous membrane and submucous tissue, extending to the *terminal* end of the prolapse, when with a stout pair of scissors it is cut off, removing a cuff. The two edges are then pulled together and sutured with catgut. There is very little blood lost during the operation, and all hemorrhage can be checked by the application of hot sponges. The result has been so satisfactory after this operation that the writer begs to recommend it to those looking after this kind of work."

4. **Atonic Gastric Dilatation.**—This is a condition due to lack of elasticity of the muscle tone, and should be distinguished from acute dilatation and the dilatation of pyloric obstruction. It is sometimes an accompaniment of chronic nervous exhaustion or nervous dyspepsia, and is associated often with general sagging of the internal organs. It is not uncommon after confinement as the result of imperfect recovery of tone, but is also common in men and unmarried women. There is generally a feeling of weight, fulness in the region of the stomach and gastric disturbances, variable or irregular appetite, a muddy complexion, tongue often coated, constipation, frequently intestinal indigestion, tendency to scanty and high-colored urine, restlessness at night, especially toward early morning. There is often with it a loose kidney, a displaced transverse colon, and sometimes a prolapsed uterus. An analysis of the stomach contents is not necessary in most cases when other methods of examination are used. The treatment Loveland suggests is freeing the abdominal muscles from restraint, the institution of habits of outdoor exercise, a cool morning sponge bath, diet restricted to what can be easily digested, and tonics for the general nervous condition.

5. **Muscle Relaxation in Women.**—This condition in women is considered by Walker as the cause for a large number of disorders, such as pelvic troubles of the benign inflammatory kind, enteroptosis, etc. He does not believe in mechanical supports for treatment, but suggests the strengthening of the muscular system and organs and repairing lacerations. In many cases pregnancy seems to be an effective cure.

8.—See editorial.

9. **Hyoscin.**—Pettey's article is a severe criticism of the recent papers by Lott and Hare on the heroic use of hyoscin in the treatment of the morphin and whisky habit. He insists that different patients do not have the same tolerance for the drug, and what would be safe in one might be very dangerous in another. He also insists on the value of the eliminative treatment in drug habits, which he thinks is not sufficiently recognized by the authors referred to. The important point, however, is that the dosage which would do for one patient is no index of what would be required for the next, and no fixed dose can be stated in advance. The only way is for the physician to remain with the patient and watch the effect of this drug. Routine administration is perilous. Another peculiarity of the drug or of persons taking it, is that in some cases after long administration it has begot intolerance instead of tolerance. He has observed such cases.

11. **Etiology.**—The points specially referred to by Bergey are the researches on the causation of yellow fever by Findlay,

Reed and Carroll, those of Van der Loeff, Pfeiffer, and others on the possible germ of variola, and the researches of Wilson and Chowning are also referred to (see THE JOURNAL of July 19, 1902), on the causation of the "spotted fever" of the Rocky Mountains.

12. **Creosote in Pneumonia.**—Van Zandt sent out last March a number of circulars asking the following questions of those who had used creosote or carbonate of creosote in the treatment of pneumonia: 1. Do you believe creosote ever aborts pneumonia? 2. Do you believe the majority of cases are mitigated by it? 3. Have you ever found cases which, having plenty of time, were entirely uninfluenced by it? In response he had over 70 letters and cards and five verbal statements, a large proportion of which are tabulated. For the first question 37 physicians, reporting 762 cases, said "Yes"; 15, reporting 187, said "No," and 19, reporting 177, failed to answer. Therefore, of those reporting, a little over two-thirds admitted the abortive effects of creosote. To the second question, 57, reporting 1022 cases, answered "Yes"; 2, reporting 10 cases, said "No," and the remainder failed to answer. To the third, 23 said "Yes"; 31 "No," and 10 failed to answer. These figures, he thinks, confirm the conclusions of his former article, viz., that a large per cent. of pneumonic cases are cut short or aborted; almost all the rest are mitigated, and the remainder or a very small per cent. are not affected by the remedy. He calls particular attention to the testimonies of Dr. W. H. Thompson from his experience in the Roosevelt Hospital, showing a striking contrast in the mortality with and without its employment. He thinks the use of carbonate of creosote or creosote in the treatment of pulmonary affections is one of the greatest live-saving discoveries of the 19th century.

13. **X-Ray in Laryngeal Cancer.**—Delavan has not been able to find any absolute proof of the value of the *x*-ray in the fragmentary and meager reports which he has reviewed, but there has been enough to suggest its value. In the answer to the question should the *x*-ray be resorted to in laryngeal cancer, he says the victim of advanced laryngeal cancer should be allowed the benefit of it. In the early cases it is a question whether any time should be lost in experimenting. Still, where the progress of the disease is not rapid, and a few days would have to elapse before operation, it would be entirely justifiable to submit the patient to the treatment. What we need is a large series of carefully-reported cases and lapse of time sufficient to prove that the treatment is of lasting success. In conclusion, he reports a case treated for laryngeal cancer by the *x*-ray with about eighteen exposures, which seemed to be beneficial, but the patient shortly died of Bright's disease. From what was observed in the two weeks' treatment it seems that the patient would have been still further benefited had his general condition been more favorable.

14. **Varicocele.**—The subject of varicocele, its causation, locality, age of prevalence, diagnosis, symptoms, prognosis, etc., are discussed at length by Chassaignac, who describes his observations and sums up his conclusions as follows: "Varicocele is a common disease, from 10 to 15 per cent. of males above puberty being affected to a noticeable extent. In the majority of instances it causes little or no trouble. In a certain proportion it leads to more or less pronounced symptoms, physical or psychical, direct or reflex. Palliative measures are sufficient when the symptoms are not severe, but the only radical cure is by operation. Open scrotal ligation and resection is the operation of choice. Suprapubic ligation and resection may be substituted by those who prefer. Subcutaneous ligation is proper in selected cases."

16. **Acute Intestinal Obstruction.**—Delatour makes a special point of not resorting to strong cathartics to overcome symptoms of obstruction, but in doing whatever is done from below. He reports cases and offers the following summary of conclusions: "The sudden onset of obstruction of the bowels does not always mean the presence of a recent lesion, especially in those at or beyond forty years of age. In many cases the symptoms may point to an attack of appendicitis, as the appendix becomes distended by gas or fecal matter. It is best in all cases where a new growth is suspected, or where there is much distension, to first make an artificial anus, and to use the cecum for this. At this time do not spend valuable time, and produce some shock, by making a thorough exploration of the entire abdomen, in order to satisfy yourself of the exact condition. Always open the intestine immediately, as you need to give relief as soon as possible, and there is no danger of leakage of feces back into the abdomen, provided the exit at the anus is not blocked by too tight dressings. Better leave the wound exposed, the nurse being instructed to clean away the fecal matter as it appears. Do not be contented to leave these cases with the artificial opening, unless at the primary operation the tumor has been found immovable and anastomosis impossible, for many cases may live months with the tumor *in situ* if the current of fecal matter is diverted by placing the loop of intestine containing it out of the fecal current."

17. **Appendicitis.**—The special point made by Miller is the importance of the symptom of dulness in appendicitis. He thinks we should adhere to this symptom as a guide to future treatment. He does not wish the reader to conclude that in every case of appendicitis with dulness we find pus, but he does believe that in every case with dulness the conditions are such that no mistake is made by surgical interference.

20. **Medical Literature.**—The principal point in Chadwick's oration is the importance to the practicing physician of the periodical literature of the day, and he gives advice as to what a medical library should be, and how it should be built up.

21. **Pelvic Cellulitis in Fibroids.**—Two cases are reported by Cabot illustrating the importance of a thorough exploration of the pelvic wall after pelvic operations for possible pus collections, especially when a clean operation is followed by septic symptoms. The importance of keeping close watch on such cases for the appearance of tenderness, etc., is insisted on.

22. **Hodgkin's Disease.**—Hodgkin's disease is thoroughly reviewed in its various aspects by Ely, who calls attention to the differential diagnosis from lymphosarcoma, lymphomata, etc. In conclusion he offers a theory, which is supported by such authorities as Musser and Sternberg, that it is essentially a tuberculous disease. The process begins as a purely local lesion, in a gland or chain of glands, and seems to extend by the spread of germs, just as we may expect from tuberculous processes. An abrasion may be the starting point in many cases, and as presumptive evidence he quotes the fact that an increasing number of diseases, formerly otherwise described, are now found to be of tubercular origin, and though in this case the inoculation experiments failed, we may nevertheless consider this the most probable hypothesis.

24. **Acroparesthesia.**—Fry reports several cases and comments on some. He emphasizes their relation to the general neuropathic tendency, while we practically know nothing about the pathology of the condition.

27.—See abstract in THE JOURNAL of October 4, p. 853.

28. **Pericarditis from Bright's Disease.**—After first noticing the literature, Allyn reports a case of terminal pericarditis in Bright's disease, with autopsy, and discusses the symptomatology and diagnosis. He here remarks that the symptoms differ somewhat from those of other forms of pericarditis, developing as it does always in the final stages of the disease, which in itself may account for all the symptoms that may be present. He calls particular attention to certain physical signs, especially dulness in the fifth interspace to the right of the sternum and pulsation of the vessels of the neck. Fluoroscopic examination is often helpful in cases of effusion. He thinks that exploratory puncture with an aspirating needle is harmless when properly carried out. Prognosis is always fatal, and it hastens the inevitable end of the original disease.

29. **Discovery of Astigmatism and Eye-Strain.**—Gould's paper is largely a notice of the history of the discovery of astigmatism. The accurate and scientific diagnosis of astigmatism is credited by him to Ezra Dyer of Philadelphia; the pathologic significance of the condition as bearing on headache and cerebral symptoms is credited to Weir Mitchell, from whom he makes extensive quotations. The extension of the

method of estimating and correcting astigmatism has been largely due to Philadelphia specialists, as also the bifocal spectacles which were first invented by Benjamin Franklin, and the perfecting and making practical the art of retinoscopy, and the recognition of the pernicious influence of eye-strain on the digestive and assimilative system, are all due to Philadelphians. The evil physiologic influence of eye-strain was also first pointed out by a Philadelphia oculist in 1888. Other points mentioned are repression of unprofessional methods, the operative manias of the tenotomists, etc. He remarks in conclusion that there is a genuine significance in the term "Philadelphia School of Ophthalmology."

30. **The Typhoid Colon Group of Bacilli.**—In this third article of Coleman's, he notices particularly the psittacosis bacillus. He says while there has been no report of the disease in this country he thinks from the testimony of bird dealers, or something similar to it, must be common, though its communication to man has not been observed.

37. **Multiple Infections.**—Brown reports a case of syphilis co-existing with vaccinia, another of estivo-autumnal malaria and pulmonary tuberculosis; one of coincident whooping cough, acute inflammatory rheumatism and lobar pneumonia, and one of typhoid fever and simple tertian malaria.

38. **Green Drug Fluid Extracts.**—Chamberlin insists on the importance of securing the true active principle of vegetable drugs in fluid extracts. Some drugs suffer no deterioration if properly dried, and under proper conditions may be kept indefinitely. Others, while not injured in the drying process, are so subject to the attacks of insects and worms, that they soon become filthy and unfit for medicinal use. In others again certain volatile constituents on which the therapeutic value of the drug depends, are lost by decomposition and evaporation in the dried form, some instances of which he mentions: for example, the fluid extract of viburnum prepared from the dried plant as compared with the one from the fresh green bark, both in its physical characteristics and in its therapeutic properties. In some cases where the active principles are resinous in their nature, although in solution in the natural juices of the plant and at that time freely soluble in alcohol, they become hard and insoluble in even the most powerful solutions after the drug has been dried, as in the case of stillingia. Other instances are mentioned, and he quotes from the Public Analyst of the State of New York, Scudder, Marion-Sims and others in support of these views. The medicinal properties of plants are, to a considerable extent, complex and unstable organic bodies. In making the extracts, therefore, he says we should be careful to have them made from substances in which all the virtues are still retained.

44.—See abstract in THE JOURNAL, xxxviii, p. 1390.

53. **Congenital Malformation.**—The title of Thomson's paper gives his subject. The special forms of anatomical abnormalities he mentions which are mainly due to muscle hypertrophy without any apparent organic cause, such as congenital hypertrophy of the bladder, colon, pylorus, and stomach wall, are, in his opinion, due to overwork in fetal life. He thinks that the bladder, bowel and stomach are developing, gaining both strength and precision during the latter months of pregnancy and might be liable to temporary functional derangement. As regards congenital hypertrophy of the pylorus he remarks that it would seem possible that this is often transitory and functional, from the gradual disappearance of symptoms in some cases in which there is reason to believe that the anatomical condition remains the same.

57.—This article has appeared elsewhere. See THE JOURNAL of October 25, ¶36, p. 1072.

63. **Diphtheria.**—Kerley has treated 159 cases of diphtheria altogether, 42 intubation cases; 103 were treated without the use of antitoxin. Of these 60 died and 43 recovered. Of the 56 treated with antitoxin there were 41 non-operative cases with 1 death, and 15 operative cases with 3 deaths. One of the fatal operative cases was injected with too small an amount of antitoxin. The others were treated late in the disease. The only fatal non-operative case was given 1000 units on the fourth day of illness and died on the eighth day. It was his first experience with antitoxin. He would establish the following principles: "With visible membrane, inject at once, and take a culture. In croup, inject if there is inspiratory and expiratory obstruction. The patients should be seen at twelve-hour intervals. Reinject in twelve hours if the patient is not improved or if improvement is not marked. If continued improvement does not follow, reinject at twelve-hour intervals until the membrane disappears."

64. **Intubation.**—McCollom finds that since the South Department of the Boston City Hospital has been open there have been 1200 intubations. The death rate, including all cases, was 40 per cent. Eliminating the deaths caused by diphtheritic paralysis, the death rate was 30 per cent. Eliminating the moribund cases dying a few hours after admission, the death rate was 25 per cent. This is lower than that of the London and Glasgow hospitals, and he thinks it is due to the fact that here they operated early, and gave large doses of antitoxin. He finds, according to his experience, intubation is available in the adult, and he has used it in the case of a man of 60 years of age with less difficulty than would have been met with in tracheotomy. The length of time the tube stays in is varied. He generally takes it out at the end of three or four days, and it does not often have to be returned. The most favorable thing to happen is for the child to cough up the tube at the end of forty-eight hours and have no return of laryngeal stenosis.

66. **Human Milk.**—Meigs thinks that human milk should be the basis of artificial feeding, and recalls his method of analysis published some twenty years ago, and his conclusion that human milk never contains more than 1 per cent. of casein. He thinks this should be tested at the present time, for if this is correct subsequent analyses are incorrect, and it would prove that his analysis in regard to the invariably low per cent. of casein was also correct. Second, it is worth while to test whether it is better to have the strength of the infant food increased at varying intervals, or, as is advised by him, to keep the strength the same for eight or nine months, but increase the quantity.

68. **Pleuritic Effusions.**—A new sign, here described by Kelley, is as follows: "In the course of symptoms which indicate the early stage of pleurisy, among which is the attitude of lying on one side or bending toward, or pressing on one side—this position changes, and the patient instinctively turns and prefers to lie on the back or to be propped up high in bed, and avoids bending toward that side or pressing on it. This is a sign of effusion—probably of an effusion of considerable bulk, and poured out with a degree of rapidity." He has observed this again and again, and while he is not prepared to say that it is always present he believes that it is as reliable as other symptoms. He asks does it indicate anything more than an effusion or is it a symptom of consolidation of the lung, which he does not believe. Whether it is present in adults he can not say. He has only observed it in children.

74. **Echinococcus Disease.**—This article is intended to give the statistics of hydatid disease in the United States and Canada collected from the literature and other sources up to July 1, 1901, including the reviews given by Osler and Sommer in earlier publications. Lyon finds a total of 241 cases, 91 per cent. being in foreigners. Of the native born, the larger quota was in the colored race. In Canada the proportion is large on account of the Icelandic immigrants of Manitoba. The question whether the disease is increasing can not, as Lyon thinks, be definitely answered at the present time. According to the Agricultural Department authorities it is undoubtedly on the increase in domestic animals. Echinococcus disease in man and animals is undoubtedly due to the ingestion in food and drink of the eggs of the *Tenia echinococcus*, a small tapeworm found in dogs and wolves. We can exterminate the disease by enforcing proper sanitary regulations at the slaughter houses and by burning of the larval cysts found in slaughtered animals, and thus preventing the infection of dogs and other animals. The practice of throwing out the offal of slaughtered animals should be prohibited by law. Dogs should be kept out of slaughter houses. At present the disorder is

rare, but it can be easily brought about by carelessness that it might be as serious a matter here as in Germany, the Argentine Republic and Australia.

75. **Congenital Narrowness of the Aortic System.**—Burke's conclusions are that, contrary to the assurance of many authors, we must admit that there is such a thing as narrowness of the aortic system as a cause of disease. As resulting phenomena we have first left-side hypertrophy of the heart, with subsequent dilation of the left ventricle and auricle, stasis phenomena in the lungs, hypertrophy of the right ventricle and when the course lasts sufficiently long, and the resisting power of the right ventricle becomes exhausted, dilation of the right ventricle occurs. In the arteries, we have arteriosclerosis in youthful individuals as an expression of an elevated blood pressure existing for a long time. As clinical phenomena we have paleness of the face, a feeling of constriction and oppression in the chest and dyspnea with cough and catarrhal expectoration, signs of hypertrophy, with dilation of the left ventricle and resulting insufficiency, enlargement of pulmonary limits and signs of stasis bronchitis, with increasing weakness of the right ventricle, enlargement of the liver, albuminuria, and edema. These symptoms depend more or less on circumstances such as sex, occupation, manner of living, and duration of the affection. In women anemias occur and the disturbance has its course under the picture of a primary anemia, chlorosis, or pernicious anemia, while secondary changes on the heart, as a rule, are not present. Probably the diminution of the blood quantity forms a compensatory element for the elevation of the resistance as given in aortic narrowness. In men the compensatory moment falls away, and the picture of the heart disease appears. Two causal possibilities exist: The one is a congenital condition, the other an arrest in growth of the vessel apparatus. The significance of narrowness of the vessels as a predisposing cause for infectious diseases must be admitted theoretically, in so far as it leads to a weakness of the body of the afflicted individual. The narrowness of the vessels appears, as Virchow has remarked, to act as a predisposing factor.

80.—See abstract in THE JOURNAL of July 5, p. 40.

83. **Cholecystotomy vs. Removal of the Mucous Membrane of the Gall-Bladder.**—Ries has studied the possibilities of the removal of the mucous membrane recommended by Mayo, and reports a case which seems to him to illustrate the possibility of serious objections. While in Mayo's operation no bad results have been reported, the time has yet been too short and the number of cases are not large. We have to take into account, as shown in his cases reported and illustrated, that the glands penetrate the mucous coat in some cases, and the possibility of the formation of retention cysts in the remnant of the gall-bladder, which would have the same pathology and clinical symptoms as a hydrops due to stricture of the cystic duct, after removal of the mucous membrane of the gall-bladder. He, therefore, thinks that it is a step in the wrong direction and should be abandoned in favor of the more radical, more reliable and hardly more dangerous operation of cholecystectomy.

83.—See abstract in THE JOURNAL of July 5, p. 39.

84. **Kidney Tuberculosis.**—Garceau has collected 194 cases in which the kidney was operated on for tuberculosis and has analyzed 415 cases altogether of kidney tuberculosis. He concludes that tuberculosis is rarely if ever primary, and the original focus is in some other organ in more direct contact with the external air in the majority of cases. The presence of a primary focus of disease in the body, even if the disease has been thoroughly eradicated from the urinary tract, makes the ultimate prognosis in these cases doubtful at least. Such tubercular foci may remain permanently quiescent, but may also become excited to activity by a generally low condition of the system, or by causes unknown to us. Patients should be told of the danger as regards the future, and should lead strictly hygienic and regular lives. Change of climate is often beneficial. Reported cures of long duration occur, but they have been few. Nephro-ureterectomy should be done in all cases in which the ureter is diseased and the patient's condition allows of it. The bladder should be subsequently treated if diseased. The abandoned tuberculous ureter is a special source of danger on account of the great liability of subsequent tuberculosis. Nephrotomy alone should be rejected except as a preliminary to a later nephrectomy. Resection is not justifiable, for we can never be sure that the portion removed is the only portion diseased.

85. **Valve Formation in the Lower Ureter.**—Morgan reports a case at length in which, through some local inflammatory action early in life, some small adhesive bands surrounded the ureter just under the cover of the tip of the seminal vesicle, binding the latter to the ureter and to the bladder. These impeded, but did not totally obstruct, the flow of urine for many years, but led to the gradual formation of a pouch, which became of such a size as to make a sharpened angular deformity at the place of most dense adhesion. This led to a valvular mucous fold which intermittently completely shut off the ureteral current. The operation was a serious one, and the diagnosis difficult. He remarks that with his experience in this case he thinks that the route followed by the lumbar incision in the rear and exploring the ureter downward is an ideal one. Great care must be had for the peritoneum and the spermatic cord must be protected.

88. **Nose Measurements.**—Mosher has measured a large number of heads to get an idea of the operating distances in the nose, which he illustrates by diagrams and schematic cuts, which would require their repetition to convey a correct idea. He also measured dried skulls for comparison. He remarks that in taking measures of the floor of the frontal sinus we are struck with the fact that if a burr is entered at the upper end of the infundibulum and passed directly upward in order to open the frontal sinus, it will in the majority of cases enter the cranial cavity. This is due to the frequent sharp slope forward of the posterior wall of the sinus. In order to enter the sinus at this point, the burr should point forward at an angle of 45 degrees, and would have a working distance of half an inch. In order to bore straight up into the sinus the probe must be held parallel with the teeth and close to them.

89. **Cleft Palate.**—The operation here described by Ferguson is not intended to take the place of all the others or supersede the one published by him two years ago in THE JOURNAL of May 16, 1900, but it will be found suitable for cases where the mouth is like a Gothic arch, the palate segmented, extending downward into the cleft in a more or less oblique manner, and where the cleft extends into one nostril. Two mucoperiosteal flaps are liberated, the one from the inner segment turned downward into the mouth, and that from the outer segment passed into the nostril. When these are coaptated, raw surface to raw surface, they overlap, and are held there by a few stitches. The results have been good in the four operations in which he has tried it. The details of the operation are given as follows: "Administer chloroform by the spray method; place the patient in the Rose position; sit at the head of the patient; open the mouth with a gag; cleanse the face and mouth with a lotion of equal parts of alcohol and water, and cocainize the soft palate, pharynx, and larynx. Raise a mucoperiosteal flap from the nasal septum and inner segment of the hard palate and drag it into the mouth with Brophy's hoe-shaped periosteal elevator. The instrument just mentioned is quite sharp and easily cuts through the mucous membrane and periosteum. The formation of this flap is commenced as high in the nose as possible, and it is liberated from above downward till it is hinged by its attachment to the hard palate along the teeth. Now extend the incision in the under surface of this segment of the soft palate and uvula so as to make the completed dissection form one large flap from the hard and soft palate. The second flap is now formed from the outer segment by making an incision along the teeth down to the bone, and with a periosteal elevator detach a mucoperiosteal flap till it is hinged by the mucous membrane along the inner border of the bone segment. The soft palate and uvula segment on this side is now split along the anterior surface. The mucous membrane on the first flap faces downward while that of the second flap is on the nasal aspect, and when coaptated, raw

surface to raw surface, they are held there by two rows of stitches."

105. **Chronic Catarrh of the Throat and Ear.**—Harris concludes that our progress in the treatment of chronic catarrh of the ear has been little and our chief success rests in our ability to set aside the originating nasal catarrh. Tubal therapeutics at best are often of only temporary benefit, and sometimes even harmful. The promise to check the deafness is often all that we can give with safety. Prophylactic measures are of the greatest value, especially the early removal of the ever-present adenoids. In naso-pharyngeal catarrh we can speak a little more hopefully in saying that it is almost in every case capable of temporary cure by the removal of some local cause, although the local cause, however, is not always the real one. We must look for it in some general dyscrasia, the removal of which is essential to success and not always possible.

109. **Mouth Breathing.**—Ballenger says the respiratory functions of the nose are to regulate the temperature, moisten and filter the inspired air, and in mouth-breathing this function is impaired. The lower air tract is incapable of furnishing the required moisture. The bronchi and vesicles become abnormal, and producing irritation cause certain pathologic changes impairing their activity to absorb oxygen and throw off carbon dioxid. Deficient oxygenation of the blood results in the toxic products being thrown off into the circulation, and produces certain nervous phenomena and malnutrition. This leads to physical imperfection or malformation, and excessive accumulation of carbon dioxid in the blood impairs the function of the leucocytes and other cellular structures, which are unable to remove from the circulation the products of faulty metabolism, and thus the nervous phenomena are thereby increased. These conditions occur in children who are mouth-breathers whether it is due to adenoids or other forms of obstruction.

110. **Laryngeal Papillomata.**—In a case of laryngeal papillomata Roy says the patient should be kept under close observation and prolonged treatment with topical remedies, such as alcohol, formalin and chlorid of zinc, should be tried before resorting to surgical intervention. In adults, should the mild treatment prove unsuccessful and especially should there be any interference with breathing, the endolaryngeal removal with instruments may be resorted to. In children the interval of mild expectant treatment should be even longer than in adults, and should the symptoms warrant surgical intervention, then prolonged tracheotomy is the safest and surest procedure. Laryngotomy should be done only when all the other methods have failed. He reports a case apparently entirely cured by local treatment with cocain solution, though surgery seemed to be inevitable.

113. **Labyrinthine Wall.**—In the Stacke and Schwartze operation Payne now operates so as to thoroughly exenterate the antrum and attic but leaves the labyrinthine wall in the lower two-thirds of the tympanum proper untouched, to be treated later through the external meatus. In this way he finds the amount of hearing saved very much greater, and he thinks there is no reason for applying the heavier mastoid curette to the walls that are usually easily reached through the external meatus.

115. **Tuberculosis.**—Pottenger calls attention to the importance of the proper care of the upper air passages as a prophylactic to tuberculosis, thus diminishing the chances of infection. The rhinologist also has the best chance to observe the disease in its incipiency and in its curable stage.

121. **Malignant Disease of the Mouth and Neck.**—The principal immediate dangers of operation for malignant disease of the mouth and neck are shock and collapse due to hemorrhage, too much manipulation, reflex and direct inhibition of the heart and respiratory tract. These may be largely prevented by absolute control of the arterial blood supply by temporary closure of the carotid arteries, by preliminary injection of atropin, supplemented when possible by local cocain applications. The principal consecutive danger is infective inflammation, more particularly septic pneumonia. The most effectual preventive of this is a definite control of the blood supply to prevent the entrance of blood into the pulmonary tract, and shortening the operative time. In certain selected cases tracheotomy is useful. After operation the greatest reliance must be placed on warm, moist air, careful feeding, constant care of the wound and special nursing until granulations appear. The ultimate care depends on the stage at which the disease is attacked and the thoroughness of the operation. The removal of individual glands is clinically impossible, but the advantages of removing all the gland-bearing tissue in which metastases may occur *en bloc*, beginning at the most distal point, are emphasized.

128.—See abstract in THE JOURNAL, xxxviii, p. 1696.

129. **Bence-Jones Albumose.**—The test here described by Boston is a modification of the lead acetate and caustic soda test. He finds the routine described below of value in economizing time and labor, and its reactions equally decisive as those by some more complicated methods: "1. Fifteen to twenty c.c. of the filtered urine are placed in a test-tube, and to it an equal quantity of a saturated solution of sodium chloride is added, and the tube shaken to effect a perfect mixture. 2. Two or three c.c. of a 30 per cent. solution of caustic soda are now added, shaking vigorously. 3. The upper one-fourth of this column of liquid is gradually heated over the flame of a Bunsen burner to the boiling point, when a solution of lead acetate (10 per cent.) is added, drop by drop, boiling the upper previously-heated stratum of liquid after each additional drop. 4. When the drop of lead solution comes in contact with the liquid a copious pearly or creamy cloud appears at the surface, which becomes less dense as the boiling point is neared; and when ebullition is prolonged for from one-half minute to one minute the upper stratum shows a slight browning, which deepens to that of a dull black. The lower portion of the heated liquid displays less marked blacking, and below this point for some distance there is seen a variable degree of browning. Standing intensifies the reaction; but if this be prolonged for several hours the black precipitate falls through the clear stratum of liquid, collecting as a coarsely granular pigment in the bottom of the tube. This reaction has been studied in the urine of a case of myeloma: dilution, one part in ten; and often a much higher dilution gave positive results. It depends on the presence of loosely-combined sulphur—a constituent of Bence-Jones albumose—which when treated as above outlined causes the lead to be precipitated in the form of lead sulphide. Phosphates, when present in excess, may cause a slight, flocculent, brown precipitate on addition of the soda solution; but this browning is not of sufficient intensity to be mistaken for that of albumose."

131. **Gastric Mucosa.**—From a study of his amply illustrated paper Einhorn formulates the following conclusions: "1. The secretory functional disturbances of the stomach are not based on a primary change in the mucous membrane of the stomach. They rather produce, if they last for a longer time, lesions of the mucosa of greater or less extent. 2. The diagnosis of carcinoma of the stomach may, under specially favorable condition, be made from a piece of gastric mucosa if a direct invasion of the gland substance by epithelial cells can be observed. 3. Therapeutically, attention must be directed principally toward the improvement of the general body state, and only secondarily by means of special measures against any secretory anomalies that may be present."

139. **Acute Lymphatic Leukemia.**—The case reported by Reed is here discussed at length in relation to the pathology and unity of the forms. She believes that the lymphocytes originate in the bone marrow and that acute leukemia, whether lymphoid or myelocitic, is due to changes in the bone marrow, other hemopoietic organs being involved, if at all, only secondarily. She suggests that there are three forms of leukemia, all due to myelogenous changes, and that these should be known as the myelocytic, lymphoid and mixed-cell varieties, if we wish to make the blood picture the basis for clinical divisions. All three may be either acute or chronic; the myelocytic is usually chronic, the lymphoid usually acute. The nature of the disease, the etiology and primary focus in

the body, she holds, is still undiscovered. As we know it, leukemia is simply the manifestation of some poison which affects especially the bone marrow, the blood-forming organ in the adult, and ultimately causes death.

141. **Pernicious Anemia.**—The following are the conclusions of Warthin's extensive paper: "1. Pernicious anemia is essentially a hemolytic disease, the hemolysis being due to some as yet unknown poison comparable in its effect on the blood and blood organs to the action of toluylene-diamine—whether autointoxication or infection, remains yet to be determined. 2. The poison of pernicious anemia stimulates the phagocytes of the spleen, lymph and hemolymph glands, and bone marrow to increased hemolysis (cellular hemolysis). Either the phagocytes are directly stimulated to increased destruction of red cells, or the latter are so changed by the poison that they themselves stimulate the phagocytes. The hemolysis of pernicious anemia differs only in degree, not in kind, from normal hemolysis or the pathological increase occurring in sepsis, typhoid, etc. 3. It is not improbable that from the destruction of hemoglobin poisonous products (histon?) may be formed which have also a hemolytic action—a vicious circle of hemolysis may thus be produced. No proof of this exists at present. 4. The hemolysis of pernicious anemia is not confined to the portal area, as according to Hunter, but in some cases at least takes place also to a large extent in the prevertebral lymph and hemolymph nodes and bone marrow. In the majority of cases the spleen is the chief seat of the blood destruction. No evidences of hemolysis in the liver, stomach, and intestinal capillaries were found in the eight cases. The hemosiderin of the liver and kidneys is carried to these organs as some soluble derivative of hemoglobin, is removed from the circulation as hemosiderin by the endothelium, and then transferred to the liver or kidney cells. The deposit of iron in these organs is of the nature of an excretion. 5. In the majority of cases only slight reaction for iron is found at the sites of actual hemolysis (spleen, lymph and hemolymph glands and bone marrow). The greater part of the pigment in the phagocytes of the spleen, lymph and hemolymph glands does not give an iron reaction while in a diffuse form. When changed to a granular pigment the iron reaction may usually be obtained. The change to hemosiderin is for the greater part accomplished by the endothelium of the liver and kidneys. 6. The varying pathological conditions found in these different cases of pernicious anemia can be explained only by a theory of cyclical or intermittent process of hemolysis. This theory is also borne out by the exacerbations so frequently seen clinically. The autopsy findings, in so far as evidences of hemolysis are concerned, will depend on the relation between the time of death and the stage of the hemolysis. 7. The changes in the hemolymph glands found constantly in these eight cases were: dilatation of the blood sinuses and evidences of increased hemolysis, as shown by the increased number of phagocytes containing disintegrating red cells and blood pigment. In some of the cases these changes were accompanied by great increase in size and apparent increase in the number of hemolymph glands; in other cases there was no hyperplasia, the only evidence of the changes present being that obtained by the microscopic examination. The changes found can not be regarded as a specific of pernicious anemia, since it is probable that they may be produced by other infections or toxic processes characterized by great hemolysis. 8. The lymphoid and megaloblastic changes in the bone marrow do not form an essential part of the pathology of pernicious anemia, and are to be regarded as of a compensatory nature—an increased activity of red-cell formation to supply the deficiency caused by the excessive hemolysis."

148. **Calomel and Tincture of Iron.**—Sprague remarks that he has heard from practicing physicians and learned by personal experience that the use of acids during the administration of calomel was bad, as tending to mercurialization, but he has found that this idea is not only contradicted in some of the text-books, but exactly the reverse is practiced and taught in some hospitals, much to his surprise. He quotes, for instance, Hare's "Practical Therapeutics" as advising the use of tincture of chlorid of iron in connection with calomel, and says he would be pleased to hear from others on the subject.

149. **The X-Ray.**—Heeve reports cases of *x*-ray treatment of enlarged condyles and of varicose veins, and remarks that he has employed it also in various malignant conditions which he has reported elsewhere. He thinks there is no gain of safety in using the grounded screen of sheet silver. The most astonishing feature is that the *x*-ray possesses powerful analgesic properties, immediately relieving pain in cancers and ulcerations, even if extensive. The distance between the tube and the patient should never be less than five or more than twelve inches. The rule as laid down by him is as follows: Sarcoma, six inches; epithelioma, seven to nine inches; lupus, six to eight inches; ulcer, tubercular, eight inches; varicose, eight to ten inches; and skin diseases, eczema, etc., eight to twelve inches. In some patients, especially in blondes, a depressing reaction occurs, shock and a fall of temperature. This should be treated with stimulants and tonics and postponement of treatment until the general condition is attended to. In closing, he emphasizes the fact that in treating sarcoma and carcinoma we must use a high vacuum tube, running the static with the greatest number of revolutions possible.

150. **Chloretone.**—Bickle uses chloretone, 15 gr. every time two hours before operation, thus preventing post-operative vomiting, with great success. He tabulates a number of cases in his practice as showing the results of this treatment.

152. **Acetozone in Typhoid Fever.**—Abt and Lackner report briefly details of 40 cases, giving a tabulated analysis at the end of the article. The method of administration of acetozone which was found best was the aqueous solution with a few drops of orange extract added. Only two cases were fatal, one from pneumonia and pulmonary edema and the other as the result of pyrexia. Stupor and tympanites were almost entirely absent; hemorrhage occurred twice in the same case. The characteristic typhoid fetor of the stools was markedly diminished. The average duration of the fever after acetozone was taken was thirteen and one-half days in 37 cases, including two relapses. The total average was 23.6 days.

162. **Surgery of the Kidneys.**—From the complete data of his article, concluded in this issue, Lower deduces the following conclusions: 1. Before doing a cutting operation on the kidney, especially a nephrectomy, the presence of a second functionating kidney should be established. 2. The best and safest method for ascertaining the presence of a functionating kidney is by the aid of cryoscopy and ureteral catheterization. 3. The function of the kidney is best determined, in the order of their importance: (*a*) by the freezing-point of the urine; (*b*) by phloridzin glycosuria; (*c*) by the quantity of urine excreted; (*d*) by the freezing of the blood. 4. The most reliable method of obtaining the separate urines is by the ureteral catheter.

170. **Tuberculosis.**—Eichberg considers the contagiousness of tuberculosis, like the reported death of Mark Twain, "greatly exaggerated," and that in our attempts to educate the public we have rather overdone the thing with results that are not exactly to our liking. While the conception has accomplished much good in giving the patients their own bedrooms and throwing open the doors and windows, and put a stop to some extent to indiscriminate expectoration, it has gone beyond this and laid the foundation for the blind unreasoning terror which now represents the mental attitude of many toward these sufferers, and has held them up as a veritable hotbed for the dissemination of the malady. It has caused communities to pass laws against the erection of sanitariums. He asks if we have not gone beyond the limit of scientific teaching as much as we have gone beyond the limits of enlightened humanity.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures and single case reports are omitted unless of exceptional general interest.

British Medical Journal (London), October 11.

1 *Recent Studies of Immunity. William H. Welch.
2 *Concerning Spastic and Syphilitic Spinal Paralysis. Wilh. Erb.

3 Death from Chloroform Poisoning. John A. Hayward.
4 *A Discussion on the Modern Indications for Cesarean Section. A. L. Galabin.
5 Remarks on Fifty Cases of Cesarean Section. Murdock Cameron.
6 *Further Experiences of Fritsch's Fundal Incision in Cesarean Section. J. M. M. Kerr and others.
7 *Total Abdominal Hysterectomy (Especially by Doyen's Method) for Fibromyoma Uteri. Herbert R. Spencer.
8 Phototherapeutics as a New Therapeutical Agent in Obstetrics and the Diseases of Women. Prof. Curatulo.
9 Remarks upon Ectopic Gestation, Studied Especially with Reference to Diagnosis and Indications of Treatment. George T. Harrison.
10 The Use of Potassium Chlorate in the Treatment of Cases of Habitual Death of the Fetus in the Later Months of Pregnancy. Robert Jardine.
11 *Puerperal Eclampsia in the Light of Thyroid Inadequacy and Its Treatment by Thyroid Extract. H. Oliphant Nicholson.
12 Neurasthenia (So-called) Hysteria, and Abdominal Section, J. Stuart Nairne.
13 *A Discussion on the Operative Treatment of Prolapsus Uteri. D. Berry Hart and others.
14 The Past and Present Treatment of Uterine Fibroids. Murdoch Cameron.
15 The Iodo-bromo-saline Waters of Salsomaggiore in Diseases of Women. G. Emilio Curatulo.
16 *Vaginal Fixation. Frederick J. McCann.
17 The Abuse of Mercuric Chlorid Solutions in Obstetric Practice. C. R. Marshall.
18 *The Undesired and Unexpected Actions of Medicines, Including Tolerance and Idiosyncrasy to, or Abnormal Results from, Ordinary Doses. Lauder Brunton.
19 The Therapeutic Value of Alkaline Waters of the Vichy Type. Oscar Liebreich.

The Lancet (London), October 11.

20 Spastic and Syphilitic Spinal Paralysis. Wilhelm Erb.
21 The Reorganized University of London. A. W. Rucker.
22 Recent Studies of Immunity, with Special Reference to Their Bearing on Pathology. William H. Welch.
23 *Rats and Plague. G. J. Blackmore.

Journal de Medecine (Paris), July to September.

24 (No. 29.) *Calculs pulmonaires. Fiessinger.
25 (No. 30.) Traitement de l'angine ou pharingite granuleuse. J. Moure.
26 Traitement de l'incontinence de l'urine chez l'enfant (in children) par l'électricité. Bienfait.
27 (No. 32.) Des inconvénients de la coprostase rectale dans la grossesse (in pregnancy). Bouchet.
28 De l'emploi du Plasmon chez les tuberculeux (for consumptives). Duroisel.
29 De l'"abolitionnisme." L. Le Pileur.
30 (No. 35.) Size and Weight in Rejection of Recruits. French Standards. E. Tartière.—De l'aptitude des conscrits au service militaire déterminée par le poids et la taille des hommes.
31 (No. 36.) La placentophagie. Engelmann.
32 (No. 37.) Les convulsions chez l'enfant. Moussous.
33 (No. 38.) Le régime pénal au Maroc (in Morocco). L. Raynaud. (Commenced in No. 37.)

Presse Medicale (Paris), September 17 to October 4.

34 (No. 75.) *Indications et résultats de l'hystérectomie dans le cancer de l'utérus. S. Pozzi.
35 Des inhalations médicamenteuses comme traitement systématique des affections respiratoires. J. Thienot.
36 (No. 76.) Vaccination. G. Borne.—Historical Sketch.
37 *Traitement du tétanos par les injections intra-rachidiennes de sérum antitétanique. V. Godinho and O. Fausto.
38 (No. 77.) Diagnostic de l'épilepsie et de la paralyse générale. J. Séglas.
39 *Imbrication Method of Cystorrhaphy. E. Juvara.—Cystoraphie primitive à la suite de la taille hypogastrique par le procédé de l'imbrication.
40 (No. 78.) Traitement de l'endométrite hémorrhagique par les badigeonnages intra-utérins à la teinture d'iode. Landry.
41 *Lésions des artères dans l'infection rheumatismale. M. Rabé.
42 La valeur des sérosités d'edème au point de vue bio-chimique. Boy-Teissier.
43 (No. 79.) *Acute Suprarenal Insufficiency. E. Sergent.—L'insuffisance surrénale aigue et les maladies infectieuses.
44 La bactériologie du poumon (lungs) à l'état normal. R. Romme.
45 (No. 80.) Pathogénie et traitement de la scoliose des adolescents. M. Baqué.
46 Le lavement (rectal injection) électrique. A. Zimmern.
47 (No. 81.) Cas de syndrome cérébelleux. F. Raymond.
48 Le traitement diététique du mal de Bright. A. Martinet.
49 Les études médicales en Italie. A. Gottschalk.
50 Transactions of International Congress of Gynecology and Obstetrics, Rome, September 15. (Commenced in No. 75.)

Semaine Medicale (Paris), October 1.

51 Technique de l'autopsie du coeur (of the heart). V. Cornil.

Centralblatt f. Gynaekologie (Leipsic), xxvi.

52 (No. 38.) 6 Falle von Fibromyoma uteri, komplicirt mit Gravidität. J. Backer.
53 (No. 39.) *Beiträge zur Hände-Desinfektion. H. Füth.
54 Duration of Pregnancy. H. Füth.—Ueber die Dauer der menschlichen Schwangerschaft. Ibid. Zweifel.
55 Teleologic Conception of Medicine and the Natural Sciences. J. Kocks.—Die teleologische Auffassung in der Medicin und den Naturwissenschaften.
56 (No. 40.) Fall von spontaner completer Uterus-Ruptur. F. Kleinertz.
57 Vaginale Uterus-Exstirpation im 6 Schwangerschaftsmonat wegen Carcinoms. E. Schroeder.

Centralblatt f. Chirurgie (Leipsic), xxix.

58 (No. 39.) Paraffin Prothesis During Deforming Operation. R. Burmeister. Zur Paraffinprothese.
59 (No. 40.) *Zur Technik der Colostomie und Ileostomie; ein schlussfähiger Anus praeternaturalis. C. Hofmann.

Correspondenz-Blatt f. Schweizer Aerzte (Basle), xxxii.

60 (No. 15.) *Zur Aetiologie der Pneumococcen-Peritonitis. F. de Quervain.
61 Trusses. E. Steffen.—Ueber Bruchbänder, nebst einigen einschlägigen Bemerkungen.
62 (No. 16.) Life-Saving Aspiration as Last Resort in Case of Descending Membranous Croup. W. Kesselbach.—Zum Aspirationsverfahren bei desc. Croup tracheotomirter Diphtheriekranker.
63 (No. 17.) Forensic Importance of Puerperal Fever. C. Meyer-Wirz.—Zur forensichen Bedeutung des Puerperalfiebers.
64 (No. 18.) *Operative Behandlung der Leber-Cirrhosis. Lanz.
65 Shades for the Eyes. E. Emmert.—Alte und neue Schutz- und Deckmittel für die Augen.
66 In Regard to Damages for Accidents. E. Ammann.—Einiges zur Unfallentschädigungen.
67 *Movable Kidney and Its Anteversion. F. Wuhrmann.—Die bewegliche Niere und ihre Anteversion. (Commenced in No. 17.)
68 (No. 19.) Ethyl Chlorid Narcosis. A. Bossart.—Zur Chloräthylnarkose.

Deutsche Med. Wochenschrift (Leipsic), October 2.

69 Zur Pathologie und Therapie der frontalen und der ethmoidalen Sinusitis und ihrer orbitalen Complikationen. Th. Axenfeld.
70 *Inoculation Tuberculosis. O. Lassar.—Ueber Impftuberkulose.
71 *Transmissibility of Human Tuberculosis to Cattle. A. Moeller. Zur Frage der Uebertragbarkeit der Menschentuberkulose auf Rinder und Ziegen.
72 *Chronic Throat Diphtheroid. E. Neisser.—Zur Kenntniss vom chron. Rachendiphtheroid.
73 *Proliferation of Tissue and Neoformation in Etiology of Carcinoma. F. Marchand.—Ueber Gewebswucherung und Geschwülstbildung mit Rücksicht auf die parasitäre Aetiologie der carcinome. (Commenced in No. 39.)
74 *Influence of New Tuberculin on Cell Metabolism. J. Mitulescu.—Einfluss des neuen Tuberkulins auf den Zellstoffwechsel.

Monatshefte f. Prakt. Dermatologie (Hamburg), xxxv.

75 (No. 5.) Paget's Disease. R. Matzenauer.
76 Flagella of the Rhinosclerom-Bacillus and Its Agglutination. A. Pasini.—Ueber das Vorkommen von Geisseln beim Rhinosklerombacillus, etc.
78 Acute Inflammation of Optic Nerve as One of the First Manifestations of Secondary Lues. A. Grosglik.—Akute Sehnervenentzündung als eine der ersten Erscheinungen sekundärer Lues.
79 Ueber Onychoschisis lamellina. W. Wechselmann.
80 (No. 6.) Sarcomatosis of the Skin. M. Pelagatti.—Die Hautsarkomatose.
81 Histologic Study of Potash Cauterization. Rasch.—Histologisches über Kaliätzung.
82 (No. 7.) Mercurial Vasogen Salve. J. A. Goldmann.—Erfahrungen über den therapeutischen Effekt der Quecksilber-Vasogensalbe.
83 Diosmal in Affections of Urinary Organs. M. Fürst.—Zur Kenntniss des Diosmal-Runge (Extrakt Foliorum Bucco) und seine Anwendung in der Behandlung der Harnkrankheiten.
82 "Zelleneinschlüsse." M. Pelagatti.

Muenchener Med. Wochenschrift, September 30.

85 Sugar Formation in Animal Organism. H. Lüthje.—Zur Frage der Zuckerbildung im tierischen Organismus.
86 Klinische Erfahrungen (experiences) mit Iodothyrin. E. Roos.
87 *Infection of Cattle Fed with Tuberculous Material. M. Schottelius.—Versuche über Fütterungs-Tuberkulose bei Rindern und Kälbern.
88 *Tests of Inhalation of Spray. R. Emmerich.—Kann in Inhalatorien eine grössere Menge der zerstäubten Flüssigkeit in die Lunge gelangen?
89 *Anästhesin. G. Spiess.
90 Branching Clot in Lungs from Hemorrhage. H. Cybulski.—Ueber eine eigenthümliche Complication der Lungenblutung.
91 External Examination During Labor. G. Frickhinger.—Die äussere Untersuchung am Gebärbett.
92 Poisonous Species of the Rhus Family. K. Schwalbe.—Die giftigen Arten der Familie Rhus.
93 Negative Pressure Lung Test. L. Wachholz.—Ueber die neue Lungenprobe.
94 Zwei Fälle von spontan geheilter Perforations-Peritonitis. A. Weber.
95 Zur Prophylaxe des Pertussis. C. Stamm.

Wiener Klin. Wochenschrift, September 18 to October 9.

96 (No. 38.) Research on Carlsbad Waters. E. Ludwig and others.
97 Zur Tamponade des puerperalen Uterus. R. Chrobak.
98 Ueber Cocain. E. Fuchs.
99 Sclerosis of Brain and Focal Manifestations. Gussenbauer.—Hirnsklerose und Herderscheinung.
100 *Zur Symptomatologie gastrointestinaler Störungen (disturbances) bei Arteriosklerose. E. Neusser.
101 Zur Diagnose des in der Brusthöhle verborgenen Aorten-Aneurysmas. L. v. Schrötter.
102 *Weitere histologische Untersuchungen des Pankreas bei Diabetes mellitus. A. Welchselbaum and E. Stangl.
103 (No. 39.) Der extragenitale syphilitische Primär-Affect in seiner klinischen und volks-hygienischen Bedeutung. I. Neumann.
104 *Ueber Morphinodipsie. R. v. Krafft-Ebing.
105 Zur Casuistik der Duodenal-Stenosen. F. Reach.

106 (No. 40.) **Origin of Hemolysis.** P. Dömeny.—Stammt die wirksame Substanz der hämolytischen Blutflüssigkeiten aus den mononuclearen Leukocyten?
107 Incipient Syphilitic Mammary Disease. R. Matzenauer.—Brustdrüsensyphilis im Frühstadium.
108 Ueber metastatische Bindehautentzündung (conjunctivitis) bei Gonorrhoe. A. Kurka.
109 (No. 41) *Successful Serum Treatment of Scarlet Fever. P. Moser.—Ueber die Behandlung des Scharlachs mit einem Scharlachstreptococcenserum.
110 Congenital Inguinal Hernia. S. Goldner.—Beitrag zur Diagnostik und Häufigkeit des cong. Leistenbruches.
111 Zur Kenntniss der Brachydactylie. J. Sternberg.
112 Recurrens-Lähmung (paralysis) bei Mitral-Stenose. L. Hofbauer.
113 Ueber einige Fälle von traumatischen Abscesses der Nasen-Septum. F. Rode.
114 Campaign Against Tuberculosis. L. Teleky.—Zur Bekämpfung der Tub. (Commenced in No. 38.)

1.—See editorial.

2. **Spastic and Syphilitic Spinal Paralysis.**—Erb's lecture first reviews the progress that has been made in the recognition and differentiation of spinal disorders and the establishment of spastic spinal paralysis, due to disease of the lateral column and first described by him in 1875, as a clinical species. It is characterized by weakness and awkwardness of movements, spasm and rigidity of muscles increased by energetic action, and well-marked exaggeration of the tendon reflexes, no disturbance of sensation, no Romberg's sign, no change in the functions of the bladder, bowels and generative organs, no muscular atrophy, no change in the electrical reaction, no ataxy, no disturbance in the organs of sense, the pupils, cerebral nerves, speech, psychic function, memory, etc. If we find any of these conditions the case is not a pure one of spastic spinal paralysis. Its progress is slow. It is not directly fatal, but if progressive leads to complete helplessness, and the patient may finally die in a marasmic condition. Its etiology is in the dark. Apart from hereditary influences, nothing is known. Syphilitic spinal paralysis on the other hand differs from this, and was differentiated by him in 1892. It is characterized by the fact that, with the special symptoms of spastic paralysis, there is always a disturbance of bladder function and usually slight sensory disturbances. It is generally chronic and insidious in its onset, sometimes, however, more rapid, is variable in its progress, with long remissions, but death may occur after a rather rapid course. Kuh has written up the subject elaborately, but Erb thinks that further differentiation may be possible and useful. He insists that more clinical observation and study is needed before we will have a thorough idea of the nature of the lesions. Its pathologic anatomy is not the picture that one would expect. It is rather a compound system disease, a primary gray degeneration in various fiber systems of the spinal cord, chiefly in the posterior half of the lateral tracts, the pyramidal tracts, the direct cerebellar tracts and tracts of Gowers; the posterior tracts, the tracts of Goll, and partly also in the posterior-lateral tracts (Burdach's columns). Other secondary lesions may follow. The prognosis is not altogether unsatisfactory, though recovery rarely occurs. It may be expected only in the earliest stages, but a sudden standstill of the disease may be brought about and a considerable duration of life be expected. Treatment is, of course, specific. In conclusion, Erb mentions the general effects of syphilis on the spinal cord.

4. **Cesarean Section.**—Galabin holds that the mortality of cesarean section as compared with embryotomy is often given too high, and he thinks that it should be advised in place of embryotomy provided that decision may be made before labor or early in labor when the patient has not been exposed to sepsis and when a skilled abdominal surgeon is available. He is reluctant to commend it in private practice, in moderate degrees of contraction, or by those who have not had practical experience in abdominal surgery. As regards the variety of cesarean section to be employed he would leave it to the patient whether she should be sterilized for the future. If that is decided on he believes the best operation would be supervaginal hysterectomy, one or both ovaries being left, rather than merely cutting a piece out of each fallopian tube. He considers it unfortunate that the term Porro's operation has been applied to operations with the intraperitoneal treatment of the peduncle. Comparing cesarean section with symphysiotomy, he holds that the field of the latter is a very limited one, and he would make cesarean section the first choice in most cases. He quotes the John Hopkins statistics as to the mortality of cesarean section in comparison with difficult forceps delivery, which gave a per cent. scarcely higher than that of all difficult operations for delivery in contracted pelvis. He does not advise the use of the operation in placenta previa, though in the hands of an expert it might occasionally be useful. Another doubtful extension of cesarean section is the treatment of eclampsia, where the mortality is high. He mentions certain rare indications such as pregnancy in an imperforate horn of the double uterus, and some ethical problems connected with the operation. In conclusion, he urges that it is time for the more frequent adoption of this method in the treatment of pelvic obstruction, but advises extreme caution in its application to antepartum hemorrhage or eclampsia.

6. **Fritsch's Fundal Incision.**—Kerr reviews the advantages and disadvantages of Fritsch's method of fundal incision in cesarean section, and from his own experience sums up the matter by saying that the only advantage it possesses is that the child can be more easily extracted. The only objection is that the uterus becomes attached to the abdominal wall higher up and remains larger. Weighing one against another, an anterior longitudinal incision made high, is the best for routine practice; but when the uterus has also to be removed subsequent to the extraction of the child, Fritsch's fundal incision is the better, as the child can be more readily extracted.

7. **Doyen's Method of Total Abdominal Hysterectomy.**—Spencer mentions the advantages and disadvantages of operation for fibromyomata, and concludes that Doyen's operation is preferable to supravaginal amputation, and is the best method for performing total abdominal hysterectomy.

11. **Puerperal Eclampsia.**—In a general way Nicholson states his conception of puerperal eclampsia as follows: In pregnant women, for reasons at present unknown, the supply of iodothyrin in the tissues becomes, gradually or suddenly, insufficient for the needs of normal metabolism. With this, certain toxic substances (intermediate or imperfectly converted products of nitrogenous metabolism), find their way into the circulation. These toxins, by their special property of contracting the blood vessels, eventually lead to the arrest of the renal secretion. With the suppression of urine, convulsions occur, not apparently different from those of ordinary uremia. A lack of iodothyrin is the primary fault; then the functions of the important metabolic organs are deranged, and the vicious circle becomes established. The indications for treatment are the use of thyroid extract and re-establishing the secretion of the urine. He notices some observations on the pulse, namely, that in women who suddenly become eclamptic, the character of the pulse becomes markedly altered; the sphygmographic features are those of increased blood pressure. The pronounced and permanent rise in the blood pressure increases still more before the onset of the convulsions. When the eclamptic symptoms are fully developed the radial arteries are contracted and their caliber is diminished. Thyroid extract possesses the specific action of enlarging the caliber of the vessels, and he explains the good effects of morphin by the fact that a large hypodermic dose dilates the vessels. He says thyroid extract may be used by the hypodermic method or by the mouth in all cases of eclampsia, but when convulsions are severe at least one large dose of morphin should be given. Saline infusions may be used to increase diuresis, and when there is a rapidly rising temperature or certain death by coma, the additional treatment by the cold or tepid bath, recommended by Herman, seems to offer the best prospects. In the comatose type one would not use morphin. In conclusion, he suggests that thyroid extract should be tried in some of the rare cases of suppression of urine occurring after labor and miscarriage.

13. **Prolapsus Uteri.**—Summing up the operations for prolapsus uteri, Hart includes: "1. Those which attempt to tie up the displaced portion; ventrofixation; shortening of round ligaments. 2. Those which remove hypertrophic portions, and indirectly by cicatrization take bearing points: amputation of

cervix; elytrorrhaphies (mesial and lateral). 3. Those which hinder the eversion of vaginal walls; partial union of walls; vaginal implantation. 4. Those which repair and extend a torn supporting part; perineorrhaphies. 5. Those which aim at removing the displaced part so far as is possible, and in uniting the supporting part where the resection has taken place; vaginal resection and hysterectomy. The most useful operations are the combined cervical amputation, elytrorrhaphy and perineorrhaphy in medium cases, ventrofixation in selected cases. In advanced cases in widows, vaginal resection and hysterectomy has to be considered."

16. **Vaginal Fixation.**—McCann describes the operation as performed by him, leaving the fundus free, separating the vaginal wall from the bladder and stitching the anterior uterine wall. He says that the operation has certain advantages over the other methods: "1. It permanently alters the position of the uterus, and the position so obtained approximates more closely to the normal than that after any other fixation operation. 2. There is no abdominal scar. 3. There is no tendency to hernia. 4. The risk is only that of the anesthetic when the operation is performed by those skilled in vaginal surgery. It may be urged that this operation is difficult to perform and injury to the bladder apt to occur. Such an accident is not likely to happen if due care be exercised." He would use it in cases with backward displacement causing symptoms of little or no prolapse or dyspareunia, for cases with nervous symptoms following instrumental treatment and for cases associated with severe dysmenorrhea and sterility and backward displacement with adhesions, but no definite inflammatory masses in the pelvis, as in certain cases of cystocele. In case of adhesions he would modify the operation by opening the Douglas pouch and separating the adhesions, introducing a gauze drain.

18. **Undesired Effects of Drugs.**—Brunton notices the unexpected action of drugs from loss of quality or strength or their deterioration by keeping or change of strength of the drug as in concentrated laudanum by evaporation. The solution of morphin sometimes seems to indicate changes in the formation of apomorphin or some other product causing vomiting. Sometimes the very purity of the drug may alter its effect for the worse. He gives instances of this in a case of arterial tension where nitrate of potassium in the form of the ordinary commercial saltpeter was better than the pure drug, owing to the small amount of nitrite contained in the former. Changes in the effects of drugs may occur after they are swallowed as the taking quinin in large doses as practiced in the tropical countries where severe effects of quinin may be produced by the subsequent use of acid fruits. The relation of medicine to meals is also important as in the case of arsenic, which taken before meals is irritative and after meals is not. The local application of arsenic, for instance, is also different. If applied to a wound in small quantities it is absorbed and may produce constitutional symptoms; in large quantities it causes a slough and is not absorbed. The continuous ingestion of small quantities of arsenic may have a different effect from larger doses at longer intervals, especially when taken in the dry form as by the Styrian arsenic eaters. The cumulative effect is not often present. He notices cutaneous eruptions due to various drugs and the action of certain drugs on the heart, such as chloral, in the case of which Liebreich advises the use of alkalies, to counteract this effect by increasing the alkalinity of the blood. He remarks that the drugs belonging to the benzine group are not only antiseptic or antipyretic, but also anti-neuralgic. Here he believes a greater or less degree of alkalinity of the blood may also influence the pain. For some time past he has used a method of treatment in appendicitis with good results, consisting in the administration of sodium salicylate and belladonna in very full doses, usually 15 or 20 gr. of salicylate every two hours and 10 or 15 minims of tincture of belladonna to be given together or at alternate hours. These are not mixed because each drug should be taken until the first symptoms of its physiologic action appears. When these appear the drug is either to be stopped entirely or gradually diminished in quantity. A mixture of hypnotics often gives much better results than a single drug, and in conclusion he suggests the use of bicarbonate of soda to reduce the excessive acidity of the stomach contents as an adjuvant to narcotics.

23. **Rats and Plague.**—Blackmore gives notes of the outbreak of plague at Port Elizabeth, South Africa, in 1901, showing the connection of rats with the spread of the disease. Relatives and neighbors did not contract the disease, but all the patients had worked in the same rat-infected area. Wherever rats were found plague cases followed. In no case was there evidence of man-to-man infection, and in most cases the possibility was definitely excluded. He reviews the possibilities of how rats thus infected conveyed plague to man, and concludes that it must have been through the rat flea. It is said that this flea will not bite human beings, but the evidence is very slight and inconclusive. It is no proof that it does not sometimes do so because it does not always, though it is probable that, like dog fleas, they do not attach themselves to man. In the conclusion of his paper he reviews the various methods of killing rats, preventing their transportation and the introduction of infectious diseases among them. He specially cautions against the use of ferrets, which were found to become themselves infected, and, therefore, a possible means of spreading disease. Dogs and cats are useful auxiliaries, but no reliance can be placed on them, and poisoning seems to be the best means of rat destruction.

24. **Calculi in the Lungs.**—Fiessinger describes two cases. Each was marked by what he calls a period of gestation, labor and expulsion of the concretion. The symptoms simulated a tuberculous affection in some respects, but the calculi were finally coughed up, with complete subsidence of all symptoms afterward.

34. **Indications and Results of Hysterectomy for Cancer of Uterus.**—In this address read at the Rome International Congress, Pozzi stated that hysterectomy results in a definite cure in only the rarest cases. Recurrence in two years is the rule. He has had only one patient survive for six years, and one still in good health ten years after operation out of 204 hospital patients treated by vaginal hysterectomy. The abdominal route is indicated when the mobility of the uterus is diminished and there is induration in the vicinity. It allows the ureters to be detached from rigid tissues, which is, he thinks, the principal indication for the abdominal route. It increases the chances of infection of the abdominal cavity, but the mortality is constantly growing less with improved technic. Hysterectomy is contraindicated for cases in which the mobility of the uterus is much diminished and there is considerable induration in the vicinity of the organ. Palliative treatment with curetting and ignicauterization repeated as often as needed to destroy the fungous growths, may afford pretty long survivals and is absolutely harmless. The rôle of the ganglia in the terminal accidents or post-operative recurrences has been exaggerated. The predominating cause of serious accidents is compression of the ureters, but this is seldom due to adenopathy, but usually to contact propagation to cellular tissue. Recurrence generally occurs in the scar, which becomes indurated and ulcerated. Extirpation of the ganglia can never pretend to be complete, and it seems to have little influence on the return of the trouble. The abdominal route is, therefore, not indicated solely for the purpose of extirpating the ganglia. The havoc caused by extensive removal of pelvic tissue and search for ganglia is out of proportion to the results obtained by it. In cases of incipient cancer mere ablation of the uterus may produce excellent results, and in advanced cases doomed to a speedy death, a benign, palliative treatment is preferable to dangerous pseudo-curative measures. The vaginal route is advisable when the uterus is still movable and adjacent parts are free from induration except in case of senile involution or destruction of the lower portion of the organ, or invasion of the anterior lip and wall, suggesting the possibility of infiltration of the tissues surrounding the ureters, especially if there is slight oliguria and nervous or stomach troubles imputable to incipient chronic uremia from disturbance in the elimination of urine. Also in case of invasion of

the vaginal cul-de-sac. Also in case of growths necessitating morcellation. He calls attention to the necessity of distinguishing between the immobilization of the cancerous uterus by extension of the neoplasm and that due to inflammatory adhesions.

37. **Intraspinal Injection of Tetanus Serum.**—Godinho and Fausto of San Paolo, Brazil, report two cases of traumatic tetanus treated by intraspinal injection of antitetanus serum. In both the improvement was marked after the injections and one child recovered. The other died from intercurrent pneumonia. Both were in pronounced tetanus when first seen. They withdrew a corresponding amount of cerebrospinal fluid each time and injected 10 c.c. of the serum every day. Ribeiro of their city has tried the intraspinal injection of cocain in such cases, but with no result except abolition of the pain. Notwithstanding the dark color of the serum injected the cerebrospinal fluid was always found clear and limpid the next day.

39. **Imbrication Method of Cystorrhaphy.**—Juvara illustrates the various steps of his method. It consists essentially in drawing the bladder out to form a horizontal fold after the high incision. After the bladder has been opened and treated, the mucosa is detached from the other layers and is approximated and sutured. A semicircular flap is cut in the detached flap on the other side, and sutured there. The latter flap is then drawn across the sutured mucosa to the root of the similar flap on the other side, and sutured there. The latter flap is then drawn across above the first flap and sutured in this position, like a double-breasted coat. There are thus two thicknesses of the muscular part of the bladder wall over the suture in the mucosa. Patients thus treated are usually able to urinate naturally, without a catheter, from the first under strict supervision.

41. **Lesions of the Arteries in Rheumatism.**—Rabé has found unmistakable evidences of proliferating endarteritis and mesarteritis in the course of or consecutive to acute rheumatism, showing the extreme virulence of the infection. This parenchymatous mesarteritis must favor the formation of thrombi in the walls and share in the pathogenesis of the terminal cardio-vascular collapse. The lesions are liable to affect arteries of any size, and their cicatrization can occur only by sclerous transformation of the wall. Consequently acute articular rheumatism must be included among the factors of post-infectious generalized arteriosclerosis.

43. **Acute Suprarenal Insufficiency.**—Sergent describes the symptoms of acute "suprarenalitis" as pains in the lumbar and abdominal regions, anorexia, vomiting, diarrhea, depression and prostration with hypothermia, small pulse and tendency to collapse, or else agitation with delirium and fever. These different symptoms are grouped in various ways, but all constitute an acute syndrome indicating a rapid autointoxication. Chronic "suprarenalitis" may first reveal itself during some intercurrent acute infectious disease, fanning the embers into a blaze. It resembles the acute nephritis liable to complicate scarlet fever. The syndrome of uremia in the latter case is familiar, but that caused by insufficiency of the suprarenals is not yet fully established. The fatal progress of the case is due to the acute suprarenal insufficiency and not to the intercurrent infection, which is merely the occasion for it in many cases.

53. **Disinfection of the Hands.**—Füth describes tests after disinfection of the hands by the usual methods, including Mikulicz's tincture of soap. The hands had previously been smeared with a large quantity of virulent cultures of the tetragenus, which is pathogenic for guinea-pigs and mice. After the disinfection the scrapings of the hands were injected into the abdominal cavity of guinea-pigs. The animals all exhibited evidences of infection from the tetragenus which was found in pure cultures in certain organs. None of the animals showed signs of tetragenus infection, on the contrary, when the hands were disinfected with mercury-ethylenediamin (Quecksilberäthylendiamin, for convenience called Queckamin), which Krönig has been lauding for some time. A method of disinfection which preserves animals from infection with millions of extremely virulent germs as in these experiments, is certainly more effective than other methods which are unable to accomplish this, Füth concludes.

59. **Continent Artificial Anus.**—Hofmann applies to the making of an artificial anus the principles of Witzel's oblique opening into the stomach which ensures a self-closing fistula. The incision in the abdominal wall must be oblique also. The closure is in fact dependent on the latter rather than on the incision in the intestines. He recently operated on a patient with inoperable cancer of the rectum, and she is now provided with a good closing artificial anus. The wide tube lies in the same axis as the descending colon in which it is inserted. It projects 10 cm. above the skin and feces are discharged through it with ease, assisted occasionally by a mild laxative or injection through the tube. It emerges through a buttonhole a little distance beyond the sutured skin incision, which parallels the direction of the current of the feces.

60. **Pneumococcus Peritonitis.**—The French have described a pneumococcus peritonitis which occurs in little girls. Quervain has observed 2 such cases. On reviewing the details of the 32 cases that have been reported and the 8 in boys, he is impressed with the frequency of its localization on the right side, and the fact that pneumococci were found in many instances in the appendix, which required removal in a large number. In 8 children and in 6 adults there was a pneumococcus process elsewhere. In 4 the pneumococcus peritonitis occurred subsequent to a gastric ulcer or carcinoma, which probably was the entering point of the pneumococcus. Lesions in the digestive tract, ulcerations, traumatic injuries, appendicitis and pneumococcus enteritis are all liable to induce secondarily a pneumococcus peritonitis. An origin in the appendix was probable in 18 cases in which the pneumococcus was discovered in the appendix (only once in an adult). This origin was unmistakable in one of the personal cases described and in one reported by Krogius. In both of these the appendix showed no sign of perforation, but it contained a pure culture of the pneumococcus virulent for small animals. The French attribute the affection to the female genitalia, but this has not been positively established, and it is only probable in one of the cases published. In the assumed clinical primary form, as the process was so frequently on the right side—18 out of a total of 40—it is more than probable that the appendix had something to do with it. When it develops on the right side, therefore, it should be treated like other appendicular processes. Pneumococcus peritonitis usually runs a milder course than other varieties, but if the appendix has allowed the passage of pneumococci once it is liable to allow colon bacilli and streptococci to pass also, and it is far safer to have it removed to forestall this danger. [J. Jensen has recently published at Copenhagen a work on this subject based on 94 cases, including 16 not previously reported (11 of his own and 5 from Lennander's clinic). The diagnosis was based on bacteriologic examination of the exudate, feces or blood. He mentions also that he found pneumococci in the blood of 20 patients with pneumonia. In 7 of his 11 cases the infection was evidently derived from the intestines. In one of his experiments a rabbit succumbed to general pneumococcus infection undoubtedly starting in the peritoneum, after having been fed with highly virulent pneumococci per os.—Ed.]

64. **Talma's Operation for Cirrhosis.**—Lanz mentions that this operation has now been performed about 60 times with 40 per cent. recoveries. He has recommended it to 5 patients, and 2 accepted it, with complete recovery in one and marked improvement in the other case. Two of the 3 who refused it have since died. Fifteen liters had accumulated in the week before the intervention in the first case. The patient was allowed to get up the third and was dismissed the fifth day without a trace of ascites. The operation is very simple and easy. Convulsions have been observed a few times, and experiments on animals suggest that this was due to eating meat. It is, therefore, advisable to insist on a vegetable diet at the time. It is unfortunate that this omentopexy is regarded as the last resort and not undertaken until the subjects are debilitated and the circulation in general seriously compromised.

67. **Anteversion of Movable Kidney.**—Wuhrmann believes that the disturbances caused by a movable kidney are due to the anteversion of the organ. No one has previously called attention to this anteversion, as it corrects itself when the subject reclines. But when he sits or stands or lies on his stomach the kidney bends forward and causes trouble. As most persons die in bed, this anteversion is not noticed at autopsies, but he recently found it in dissecting the cadaver of a suicide who had drowned himself by crawling into comparatively shallow water. Wuhrmann has established that when the upper pole of the kidney is not firmly adherent to its support, it projects into the abdominal cavity and the liver and spleen never rest until they have bent it over at a right angle or succeeded in detaching it completely from its support.

70. **Tuberculosis by Inoculation.**—Lassar examined 365 butchers and other men employed about the slaughter houses at Berlin and found that 7 had unmistakable and 3 suspicious tubercular nodules on the hands. This is nearly 3 per cent., which is far above the average occurrence of this affection on the hand. He cites 16 other cases of a tubercular infection of the hand in persons who had occasion to handle the carcasses of tuberculous animals. The list includes Ravenel's case, published last May, and the case of Dr. Wally.

71. **Transmissibility of Human Tuberculosis.**—Moeller found it impossible to induce tuberculosis in the calves and goats in his experiments, even after passage of the bacilli through the goats.

72. **Chronic Diphtheroid Throat Affections.**—Neisser reported in 1900 some cases of a chronic diphtheroid affection of the throat without specific diphtheria. Loeffler's bacilli were found in the throat year in and year out, sometimes virulent and sometimes not, and the most energetic treatment failed to dislodge them. The serum of the persons thus affected possessed extraordinarily high antitoxic power, and they were thus protected against the ravages of the parasites. He now describes another similar case in detail. The patient was a wet nurse, and the children in the family and other servants in contact with her became affected with diphtheria, but she was exempt. Her blood serum contained approximately 1875 antitoxin units, and she was thus protected. She evidently conferred this protection on the babe at her breast, but after the nursing was discontinued this child also contracted diphtheria, after an interval of four months. The length of this interval shows the tenacity of even the passive immunity acquired through the breast milk. The nurse had never had true diphtheria, but she had occasionally times of hoarseness, dryness, and the sensation of a foreign body in the throat. There had been a case of diphtheria in her family when she was 8, and her voice was always husky. She had had an exacerbation of hoarseness and coughing about the time she ceased to nurse the babe, but continued to have charge of him.

73. **Proliferation of Tissue in Etiology of Carcinoma.**—Marchand's article is an exhaustive review of what is known and surmised in respect to malignant proliferation of tissue. He believes that if we exclude a microparasitic cause for the phenomena observed in malignant epithelial neogrowths, they can be explained only by the assumption of some toxic substance or substances elaborated by the cells in their vital processes. The formation and accumulation of this substance are due to some morbid deviation from their normal metabolism, entailing abnormal structure from the lack of normal regulation of the cellular activity. This deviation or degeneration may differ in degree and in kind. There may be enhanced capacity of proliferation independently of any degenerative process. This is especially liable to occur in embryonal tissue, but it presupposes the formation of some toxic substances. The resistance opposed by the normal organism to proliferation of tissue is possibly in normal conditions the neutralization of the specific injurious properties of the tissues by the healthy juices of normal cell metabolism. [Marchand, we learn, was offered, and declined, the chair left vacant by Virchow's death.—ED.]

74. **Influence of New Tuberculin on Cell Metabolism.**—Mitulescu's research shows that tuberculin administered in small doses and with due caution in suitable cases does not induce processes of disassimilation in the cells, but stimulates them to increased nutritive processes, and to the gradual elaboration of specific immune bodies which diminish the vitality of the tubercle bacilli and neutralize their toxins and proteins. It also causes a local inflammation around the tubercular processes, favoring their encapsulation by sclerotic tissue.

87. **Infection of Cattle Fed on Tuberculous Sputa.**—In Schottelius' tests sputa from consumptives were scattered on the fresh hay or dropped in the milk for the calves, without manipulation, in the attempt to approximate natural conditions so far as possible. About 50 gm. at a time was given each animal and repeated twenty-four times. None of the 3 animals exhibited apparent tuberculosis, but the characteristic lesions of tuberculosis were found in each, and bacilli were discovered in the parts affected.

88. **Tests of Inhalation of Spray.**—Emmerich's experience demonstrates that it is possible for an inhaled spray to penetrate in large amounts to the remotest portions of the lungs, but only under certain conditions. The amount of fluid that is sprayed must be calculated mathematically for the size of the room, and every part of the entire room must be filled thick with the droplets. The deficit of moisture in the air of the room must also be computed and the amount of fluid to be sprayed determined accordingly. A 2 per cent. solution of boric acid was sprayed in the Bulling inhaling cabinet, and a dog kept in the cabinet for an hour. A large proportion of the boric acid was found in the remotest alveoles of his lungs, and the nose of the dog is less permeable than the human nose. The results were the same when a salt solution was sprayed. The air must be saturated to a certain point. If the floor and furniture remain dry the mucosa of the respiratory passages does not become moistened by the spray. The tests showed that the air in the Bulling inhaling chamber contained .0002 mg. of ozone to the liter. Exposure to sunlight largely increased the proportion of ozone, and he suggests that this point had better be borne in mind in the construction of inhaling chambers.

89. **Anesthesin.**—Spiess remarks that cocain still remains the best local anesthetic for minor operations, but the after-treatment belongs to orthoform and anesthesin. Their domain also includes all painful cutaneous and other affections involving the nerve terminals. He believes that the healing process is promoted and really begins only when the reflex irritation of the vasomotor nerves by the injured nerve terminals is abolished with an anesthetic. He has long proclaimed the direct connection between anesthesia and the healing process. It puts an end to the reflex vasomotor irritation, the consequent hyperemia and the swelling, as the inflamed nerve terminals are soothed by the anesthetic, and the reflex communication interrupted. He has found insufflation of orthoform and, still better, of anesthesin, remarkably effective in controlling and curing whooping cough, coryza, laryngeal affections, etc.

100. **Gastrointestinal Disturbances in Case of Arteriosclerosis.**—Schrötter describes and reviews a number of cases of recurring meteorism, colics and other gastrointestinal disturbances which were traced to deficient blood supply in the regions involved when extra demands were made on their functions. Ischemia of the heart muscle is the cause of angina pectoris; ischemia of the gastrocnemius, of intermittent limping. The arteriosclerotic ischemia of the digestive tract manifests itself in the form of enteralgias or as intermittent paresis of the intestines. When exaggerated function is required of the intestine, the result of a laxative or of a course of mineral waters, or by demands on the digestive functions, the patient is exposed to the danger of exaggeration of the colics and of the meteorism until the picture of actual stenosis of the intestine is presented. As the heart energy becomes depressed and the blood pressure in the intestinal vessels falls, thrombosis is liable to develop. This abdominal form of angina pectoris is illustrated in a case he had occasion recently to observe. The attacks occurred after exercise, and

were distinguished by the prevalence of abdominal symptoms and the lack of irradiation into the left shoulder and arm. The complexion was icteric and the pains sometimes involved the teeth and temples. The patient was much improved by .01 gm. erythroltetranitrate, which seemed to shorten the attacks. At the same time he took 2 gm. a day of rubidium iodid. The pains and icterus, complicated by vomiting, in a case at Bamberger's clinic, suggested the diagnosis of cholelithiasis, but the autopsy disclosed insufficiency of the aorta and stenosis of the coronaries, with no evidences of gallstones. If sclerosis of the heart vessels alone can induce such a clinical picture it is not surprising that a similar condition in the abdominal aorta is liable to produce marked gastrointestinal disturbances. In Schnitzler's patient the attacks of pain were accompanied by constipation, and no dietetic or therapeutic measures afforded relief. A laparotomy revealed only loose adhesions between gall-bladder and adjacent intestines. The pains continued and the patient finally died in an attack after evacuation of a black stool. The autopsy showed an old occlusion of the mesenteric arteries and a recent perforation into the intestine. The pains were evidently due to the insufficient blood supply to the parts. Ortner has also observed a case in which the symptoms were extreme meteorism of the stomach and intestines, without peristalsis, occurring two or three hours after meals. There was also pain in the umbilical region. Slight atheroma of the ascending aorta could be palpated, and the autopsy disclosed extensive atheroma in the abdominal aorta, in the stomach arteries and also in the superior mesenteric. In this case the intermittent meteorism was evidently the result of the arteriosclerosis of the intestinal vessels.

102. **Histology of the Pancreas in Diabetes Mellitus.**—Weichselbaum states that the autopsies of 33 cases of pancreas diabetes confirm the assumption that Langerhans' islands play a predominant rôle in the transformation of the carbohydrates in the organism, and that lesions in these islands may entail pancreas diabetes. The other alterations found in the pancreas seem to be the consequences of the diabetes rather than factors in its production.

104. **Morphin Dipsomania.**—Krafft-Ebing uses this term to express the temporary resort to morphin to relieve an attack of melancholia. The subject in the case he describes was not addicted to morphin and had a horror of it, but sought oblivion in it, the equivalent of alcoholic dipsomania. The case demonstrates anew that dipsomania belongs to the epileptic neuroses. The epileptic character was established in this case by the traumatic origin, the vertigo, the great irritability during the attacks, the ideas of persecution, the twilight state, deambulatio and amnesia. It is possible that the melancholia, with its reactive impulse to drink, may be a psychic equivalent for an epileptic insult. It is remarkable, he adds, that there are so many clinical points in common between dipsomania and epilepsy. The abuse of alcohol may have an epileptogenic tendency, and renewed abuse of it may arouse this latent tendency and induce epileptic phenomena.

109. **Successful Serum Treatment of Scarlet Fever.**—This report of Moser's experiences was the newspaper sensation of the day at the recent "Naturforscher" Congress at Carlsbad. He announced that at the St. Anna Hospital for Children at Vienna usually only the very severest cases of scarlet fever are received. In 81 out of 699 cases a serum was tried derived from horses immunized with streptococci taken from the blood found in the heart of children dying from scarlet fever. The horses were injected with progressively increasing doses of living cultures of these streptococci, not passed through animals but cultivated only from bouillon to bouillon. After months of this preparation at the official Institute for Serotherapy at Vienna, in charge of Professor Paltauf, the serum from the horses was used for the treatment of the severest cases of scarlet fever at the St. Anna Hospital, in charge of Professor Escherich. The mortality at the hospital was reduced to 8.99 per cent., while the average mortality at the six other scarlet fever wards throughout Vienna was 13.09, and none of the other stations had half as many patients. Previous experiments with normal horse serum and with Marmorek's antistreptococcus serum had been completely negative. After the injection of 180 c.c. of the prepared serum the rapid and favorable change in the general condition is striking. The exanthem does not come to full development or disappears with exceptional rapidity. The disturbances in the central nervous system also vanish in a short time. The temperature and pulse usually decline during the early stages of the exanthem, contrary to the scarlet fever curve, and the respiratory disturbances parallel them. The gastrointestinal symptoms usually vanish in the course of twenty-four hours. Tendency to weak heart action is counteracted by the serum. The little patients are also relieved from the swelling in the naso-pharyngeal cavity and the accompanying coryza, and they no longer present the aspect of very sick children. The extensive destructive processes in the throat formerly observed did not occur in the serum-treated cases, but superficial necrosis was not prevented. The impression prevailed that nephritis was less frequent than formerly, but it is difficult to decide this question definitely yet. No instance of chronic septic intoxication was noted, but pyemic conditions were observed occasionally. An important advantage of the serum treatment is the abbreviated course of the disease. The dose injected ranged from 30 to 180 c.c., but the smaller amounts proved ineffective and the larger dose is now currently used. About 30 children were injected with 10 c.c. as a prophylactic measure, but the number is too small for final conclusions as to its efficacy. The by-effects of the serum were like those noted in the early days of antidiphtheria serum treatment: slight exanthem and occasional pains in the joints in a few cases, with, exceptionally, an abscess at the point of injection. With these exceptions the serum, even in the large doses injected, proved perfectly harmless and the experience to date fully excludes any injury to the patient from this method of treatment. Moser adds that he has found streptococci in the blood in the heart in 63 out of 99 cases of children dying from scarlet fever. These streptococci evidently differ from those found in erysipelas, etc. They are seldom pathogenic for animals, and then only in large amounts. They agglutinate also differently, as he established with his prepared serum. The mortality was nil when the serum was injected the first or second day; it was 14.29 per cent. when first injected the third day; 23.08 per cent. the fourth, to 50 per cent. the ninth day. [The antitoxic action of the serum is further confirmed by the fact that mice receiving 10 to 50 cg. of an aqueous extract of the dejecta of scarlet fever subjects to which 1 c.c. of the prepared serum had been added did not exhibit any symptoms of intoxication. Other animals injected with 2 cg. without the serum, presented morbid symptoms and died in five to eighteen hours afterward, when the dose was increased to 30 and 50 cg., while the mice that had received the serum were sound and healthy. The toxicity of the dejecta of scarlet fever subjects was demonstrated several years ago by Freund. Schnirer also mentions in a letter from Vienna to the *Sem. Méd.*, that the preventive injections proved apparently effective.—Ed.]

The Public Service.

Army Changes.

Changes in station and duties of officers of the Medical Department, U. S. A., from October 11 to 17, inclusive:

Banta, Wm. P., contract surgeon, U. S. A., is relieved from duty at the General Hospital, San Francisco, and will report in person to Major Ogden Rafferty, surgeon, U. S. A., medical superintendent of the Army transport service at San Francisco, for duty as his assistant.

Under instructions from the President, the following-named officers, now at San Francisco, are honorably discharged by the Secretary of War from the service of the United States, to take effect Nov. 20, 1902, their services being no longer required: Major Ira C. Brown, surgeon, U. S. Vols.; Captain Luther S. Harvey, asst.-surgeon, U. S. Vols.

Under instructions from the President, Major William Bowen, surgeon, U. S. Vols., is honorably discharged by the Secretary of War from the service of the United States, to take effect Nov. 20, 1902, his services being no longer required. He will proceed to his home.

Chapman, W. Earle, contract surgeon, U. S. A., now at Governor's Island, N. Y., is relieved from further duty in the Division of the Philippines and will proceed to his home, Cheboygan, Mich., and, on arrival, report by letter to the Surgeon-General of the Army for annulment of contract.

Contract Surgeon Robt. P. Cooke is relieved from duty at Ft. H. G. Wright, N. Y., and will proceed to Chickamauga Park, Ga., and report in person on Nov. 2, 1902, to the commanding officer of Camp Geo. H. Thomas, for duty.

Contract Surgeon Raoul A. Amador, now on leave of absence in New York, is relieved from duty at Camp George H. Thomas, Ga., and will proceed to Ft. Revere, Mass., and report in person to the commanding officer of that post for duty.

De Loffre, Sam'l M., contract surgeon, U. S. A., now at San Francisco, will repair to this city and report in person to the Surgeon-General of the Army for annulment of contract.

Grissinger, Joy W., first lieutenant and asst.-surgeon, U. S. A., is relieved from duty at Ft. Totten, N. Y., and will repair to Washington, D. C., and report in person at the Army Medical Museum Building, to Colonel Calvin DeWitt, assistant surgeon-general, president of the faculty of the Army Medical School, for the course of instruction prescribed in Par. 542 and 543, Army Regulations.

Major James M. Kennedy, surgeon, U. S. Vols. (captain and asst.-surgeon, U. S. A.), is honorably discharged by the Secretary of War from the service of the United States as major and surgeon, U. S. Vols. only, to take effect Oct. 31, 1902.

Kennedy, James M., major and surgeon, U. S. Vols., now at San Francisco, will report in person to the commanding general, Department of California, for assignment to temporary duty at the U. S. General Hospital at San Francisco.

By direction of the Secretary of War, leave of absence for 20 days, to take effect on or about Oct. 15, 1902, is granted Lieut.-Col. Louis M. Maus, deputy surgeon-general, U. S. A.

Major John A. Metzger, surgeon, U. S. Vols., is honorably discharged by the Secretary of War from the service of the United States, to take effect Nov. 15, 1902, his services being no longer required. He will proceed to his home.

By direction of the Secretary of War, leave of absence for one month and fourteen days, to take effect on or about Oct. 23, 1902, is granted Contract Surgeon Joseph Pinguard, U. S. A.

Reynolds, Charles R., first lieutenant and asst.-surgeon, U. S. A., is relieved from duty in the Division of the Philippines and will proceed to San Francisco, and report by telegraph to the Adjutant-General of the Army for orders.

Woodbury, Frank T., lieutenant and asst.-surgeon, U. S. A., now at San Francisco, will proceed to Plattsburgh Barracks, N. Y., and report in person to the commanding officer of that post for duty.

Stevenson, William, major and surgeon, U. S. A., is granted leave of absence for four months.

The following-named officers are honorably discharged by the Secretary of War from the service of the United States, to take effect Nov. 20, 1902, their services being no longer required: Captain Dwight B. Taylor, asst.-surgeon, U. S. Vols.; Captain Paul Dessez, asst.-surgeon, U. S. Vols.

The following-named officers, now at San Francisco, are honorably discharged from the service of the United States, to take effect Nov. 20, 1902, their services being no longer required: Major Samuel O. Potter, surgeon, U. S. Vols.; Major James C. Minor, surgeon, U. S. Vols.; Major Simon Fraser, surgeon, U. S. Vols.; Captain Laurel B. Sandall, asst.-surgeon, U. S. Vols.; Captain Geo. A. Zeller, asst.-surgeon, U. S. Vols.; Captain Geo. E. Means, asst.-surgeon, U. S. A.; Captain Thomas W. Jackson, asst.-surgeon, U. S. Vols.; Captain Harry R. Lemen, asst.-surgeon, U. S. Vols.

Navy Changes.

Changes in the Medical Corps of the Navy, week of October 18:

P. A. Surgeon T. D. Myers, retired, ordered to the Naval Hospital, Philadelphia.

Dr. J. L. Neilson, appointed asst.-surgeon with the rank of lieutenant.

Asst.-Surgeon H. A. Dunn, detached from Naval Hospital Yokohama, Japan, and ordered to Naval Station, Cavite, P. I.

Pharmacist C. McLarty, appointed pharmacist, from April 25, 1902.

P. A. Surgeon W. H. Bucher, detached from *Panther* and granted leave for one month.

Pharmacist F. T. Gordon, detached from the Navy Yard, League Island, Pa., and ordered to the *Wabash*.

Dr. R. H. Michels, appointed assistant surgeon from Oct. 11, 1902.

Marine-Hospital Changes.

Official list of the changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service for the seven days ended Oct. 16, 1902:

Surgeon John Godfrey, to proceed to Cape Fear quarantine, Southport, N. C., as inspector of unserviceable property.

P. A. Surgeon J. M. Eager, detailed to represent the service at the International Conference on Tuberculosis at Berlin, Germany, October 22-26.

P. A. Surgeon C. H. Gardner, to proceed to Port Townsend quarantine, Washington, as inspector of unserviceable property.

P. A. Surgeon L. E. Cofer, to proceed to New York City and report to Surgeon G. W. Stoner, Immigration Depot, for temporary duty. Leave of absence amended so that it shall cover the period from September 10 to November 18.

Asst.-Surgeon von Ezdorf, granted leave of absence for two months and twenty-four days from November 5.

Asst.-Surgeon C. E. D. Lord, granted leave of absence for one month from November 6.

Asst.-Surgeon J. T. Burkhalter, granted leave of absence for one month from November 3.

Asst.-Surgeon J. S. Boggess, granted leave of absence for fifteen days from November 1.

Asst.-Surgeon R. E. Ebersole, to proceed to Brunswick, Ga., quarantine station and assume temporary charge of the station during the absence on leave of Asst.-Surgeon J. T. Burkhalter.

A. A. Surgeon J. T. Bullard, granted leave of absence for thirty days from September 15.

A. A. Surgeon W. R. Hunter, granted leave of absence for fourteen days from October 13.

A. A. Surgeon J. G. Stanton, granted leave of absence for twenty-five days from October 7.

A. A. Surgeon W. S. Walkley, granted leave of absence for seven days from October 14.

Senior Pharmacist and Special Distributing Agent W. F. Macdowell, relieved from duty at Havana, Cuba, and directed to proceed to New York, and report arrival.

Senior Pharmacist L. W. Ryder, granted leave of absence for fifteen days from October 13.

BOARDS CONVENED.

Board convened at Port Townsend, Wash., October 20, for the physical examination of officers of the Revenue Cutter Service. Detail for the Board: P. A. Surgeon C. H. Gardner, chairman; Asst.-Surgeon M. H. Foster, recorder.

Board convened at San Francisco, October 20, for the physical examination of officers of the Revenue Cutter Service. Detail for the Board: P. A. Surgeon W. G. Stimpson, chairman; Asst.-Surgeon W. C. Rucker, recorder.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended Oct. 18, 1902:

SMALLPOX—UNITED STATES.

California: San Francisco, Sept. 28-Oct. 5, 11 cases.
Colorado: Denver, Sept. 27-Oct. 4, 1 case.
Illinois: Oct. 4-11, Chicago, 13 cases; Freeport, 7 cases.
Indiana: South Bend, Oct. 4-11, 2 cases, 2 deaths.
Michigan: Detroit, Oct. 4-11, 7 cases, 1 death.
New Hampshire: Nashua, Oct. 4-11, 23 cases.
New Jersey, Elizabeth, Aug. 31-Oct. 11, 9 cases, 4 deaths.
New York: Oct. 4-11, Binghamton, 1 case; New York, 1 case, 1 death.
Ohio: Cincinnati, Oct. 3-10, 3 cases; Cleveland, Oct. 3-10, 24 cases, 12 deaths; Hamilton, Oct. 4-11, 1 case; Toledo, Sept. 27-Oct. 4, 1 case; Youngstown, Sept. 27-Oct. 4, 2 cases, 2 deaths.
Pennsylvania: Oct.4-11, 4 cases; Johnstown, 5 cases, 2 deaths; McKeesport, 2 cases; Philadelphia, 1 case.
South Carolina: Charleston, Oct. 4-11, 5 cases.
Utah: Salt Lake City, Oct. 4-11, 3 cases.
Wisconsin: Green Bay, Oct. 5-12, 1 case; Milwaukee, Oct. 4-11, 12 cases.

SMALLPOX—FOREIGN.

Barbados: July 13-Sept. 29, 793 cases, 30 deaths.
Belgium: Sept. 20-27, Brussels, 5 deaths; Ghent, 1 death.
Canada: Amherstburg, Oct. 4-11, 2 cases.
Ecuador: Guayaquil, Sept. 13-27, 4 deaths.
France: Paris, Sept. 20-27, 1 death.
Great Britain: Dundee, Sept. 20-27, 1 case; Liverpool, Sept. 20-Oct. 4, 9 cases, 1 death; London, Sept. 20-27, 4 cases; Sunderland, Sept. 20-27, 1 death.
India: Bombay, Sept. 9-16, 5 deaths; Calcutta, Sept. 6-13, 1 death.
Mexico: City of Mexico, Sept. 20-28, 1 case.
Russia: Moscow, Sept. 13-20, 2 cases; Odessa, Sept. 20-27, 3 cases; St. Petersburg, Sept. 13-27, 13 cases, 3 deaths.
Spain: Corunna, Sept. 20-27, 1 case.
Straits Settlements: Singapore, Aug. 23-30, 1 death.
Switzerland: Geneva, Sept. 13-20, 1 case.

YELLOW FEVER.

Colombia: Panama, Sept. 29-Oct. 6, 15 cases.
Ecuador: Guayaquil, Oct. 20-27, 1 death.
Mexico: Coatzacoalcos, Sept. 27-Oct. 4, 1 case, 2 deaths; Merida, Sept. 19-Oct. 3, 11 cases, 6 deaths; Vera Cruz, Oct. 4-11, 5 cases, 2 deaths.

CHOLERA.

China: Aug. 16-30, Hongkong, 25 cases, 21 deaths; New Chwang, 90 cases, 85 deaths.
Egypt: Alexandria, Sept. 20-27, 208 cases, 177 deaths; Suez, Sept. 10-16, 20 cases, 16 deaths.
India: Calcutta, Sept. 6-13, 10 deaths.
Japan: Osaka and Hiogo, Sept. 6-20, 26 cases, 62 deaths.
Java: Batavia, Aug. 31-Sept. 6, 48 cases, 40 deaths.
Korea: Aug. 17, Chenampo, 92 cases, 50 deaths; Syen Chun, 20 cases, 11 deaths.
Straits Settlements: Singapore, Aug. 23-30, 1 death.

PLAGUE—UNITED STATES.

California: San Francisco, Oct. 7, 1 death, bacteriologically confirmed.

PLAGUE—FOREIGN.

China: Hongkong, Aug. 16-30, 19 cases, 19 deaths.
Egypt: Alexandria, Sept. 20-27, 4 cases, 2 deaths.
India: Bombay, Sept. 9-16, 51 deaths; Calcutta, Sept. 6-13, 6 deaths; Karachi, Sept. 7-14, 8 cases, 6 deaths; Madras, Sept. 6-12, 1 death.
Russia: Odessa, June-Sept. 29, 38 cases, 11 deaths.

New Patents.

Patents of interest to physicians, etc., Oct. 7 and 14:

710429. Electric body appliance. Patrick J. Collins and C. G. Boland, Scranton, Pa.

710689. Massaging machine. White W. M. Hickey, San Francisco.

710864. Water bag. Daniel Hogan, New York City, and C. W. Meinecke, Jersey City.

710784. Sterilizing machine. Charles A. King, Mattapoisette, Mass.

710708. Bottle for medicine, etc. Charles W. McShane, Zanesville, Ohio.

711403. Antiseptic soap cake. Eugene Klein and O. P. Workman, Grand Rapids, Mich.

710996. Artificial leg. John A. Peer, Philadelphia.

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